EXHIBIT G

California State Lands Commission Presurvey Notice Requirements for Permittees to Conduct Geophysical Survey Activities

All parts of the Presurvey Notice must be adequately filled out and submitted to the CSLC staff a minimum of twenty-one (21) calendar days prior to the proposed survey date to ensure adequate review and approval time for CSLC staff. Note that one or more of the items may require the Permittee to plan well in advance in order to obtain the necessary documentation prior to the Notice due date (e.g., permits from other State or Federal entities). Please use the boxes below to verify that all the required documents are included in the Presurvey Notice. If "No" is checked for any item, please provide an explanation in the space provided. If additional space is needed, please attach separate pages.

Please use the boxes below to verify that all the required documents are included in the Presurvey Notice. If "No" is checked for any item, please provide an explanation in the space provided. If additional space is needed, please attach separate pages.

Yes	No	
X	☐	Geophysical Survey Permit Exhibit F
X	☐	Survey Location (including a full-sized navigation chart and GPS coordinates for each proposed track line and turning point) Explanation: _____
☐	X	Permit(s) or Authorization from other Federal or State agencies (if applicable) Explanation:
X	☐	21-Day Written Notice of Survey Operations to Statewide Geophysical Coordinator/
X	☐	U.S. Coast Guard Local Notice to Mariners
X	☐	Harbormaster and Dive Shop Notifications Explanation: _____
X	☐	Marine Wildlife Contingency Plan Explanation: _____
X	☐	Oil Spill Contingency Plan Explanation: _____
☐	X	Verification of California Air Resources Board's Tier 2-Certified Engine Requirement Explanation: *Vehicle engines are gasoline fueled and exempt from Tier 2 Certification*
X	☐	Verification of Equipment Service and/or Maintenance (must verify sound output) Explanation: _____
X	☐	Permit(s) or Authorization from California Department of Fish and Wildlife for surveys in or affecting Marine Protected Area(s) (if applicable). Explanation: *California Department of Fish and Wildlife Permit #SC-13359 for operations inside Campus Point State Marine Reserve*

NOTE: CSLC staff will also require verification that current biological information was obtained and transmitted as outlined in Section 5 of this permit

EXHIBIT F

PRESURVEY NOTIFICATION FORM

Applicant/Permittee's Mailing Address:
Jenny White
USGS Pacific Coastal and Marine Science Center
2885 Mission Street
Santa Cruz, CA 95060

Date: 8/2/17
Jurisdiction: Federal ____ State __X_ Both ___
If State: Permit #PRC 8394
Region: II
Area: Santa Barbara, CA

GEOPHYSICAL SURVEY PERMIT

Check one: __X__ New survey ____ Time extension of a previous survey

U.S.G.S. Pacific Coastal and Marine Geology (Applicant/Permittee) will conduct a geophysical survey offshore California in the survey area outlined on the accompanying navigation chart segment. If you foresee potential interference with commercial fishing or other activities, please contact the person(s) listed below:

FEDERAL WATERS (outside 3 nautical miles)

1) Applicant's representative:
2) Federal representative: (e.g., Bureau of Ocean Energy Management [BOEM] or National Science Foundation [NSF])

NOTE: Any comments regarding potential conflicts in Federal waters must be received by the Applicant's Representative and lead Federal agency within ten (10) days of the receipt of this notice.

STATE WATERS (Inside 3 nautical miles)

1) Permittee's representative: Jenny White
2) CSLC representative: Richard Greenwood

NOTE: Any comments regarding potential conflicts in State waters should be received as soon as possible by the Permittee's representative, no more than fifteen (15) days after the receipt of this notice.

This notice is for up to two successive surveys of the same area between Goleta and Point Mugu to assess changes in seafloor morphology related to seasonal storms, El Nino impacts, and anthropogenic influences.

1. Expected Date of Operation: Up to two 6-day surveys will be conducted, as weather and project scheduling permit, one during each of the operational windows below.

   September 4-10, 2017

   September 18-26, 2017

October 2-11, 2017

February 12-16, 2018

February 26 – March 2, 2018

March 12-16, 2017

March 26-30, 2018

2. Hours of Operation: 7AM to 6PM
3. Vessel Names: CPS Cobra, CPS Mickey (Personal Watercraft - Jet Skis)
4. Vessel Official Number: N/A
5. Vessel Radio Call Sign: None Assigned
6. Vessel Captain's Name: Timothy Elfers, Daniel Hoover
7. Vessel will monitor Radio Channel(s): 82a,16
8. Vessel Navigation System: Differential GPS
9. Equipment to be used:

1. Odom Echotrac Bathymetric Echo Sounder
   a. Frequency (Hz, kHz): 200 kHz
   b. Source level: (dB re 1 µPa at 1 meter (m) (rms): 93 dB RMS
   c. Number of beams, across track beam width, and along track beam width:
      1 beam, 9° conical beam. 1.6m along track, 1.6m across track at 10m depth
   d. Pulse rate and length: 4.5-13.5 pps at 34-500 µ seconds depending on water depth.
   e. Rise time: 7 µ seconds
   f. Estimated distances to the 190 dB, 180 dB, and 160 dB re 1 uPa (rms) isopleths,
      190 dB: <1M ; 180 dB: <1M ; 160 dB: <1M

      These estimates are based on the underwater sound propagation equation:

      RSPL= SL-20log (R/Ro)-AR, where

      RSPL=received sound potential level

      SL= RMS source level re. 1 uPa (rms) based on manufacturer's specifications

      R= Distance

      Ro= Reference Distance (1 m)

      A= sound absorption coefficient

   g. Deployment depth: 0.25 m

h. Tow speed: 4 knots

i. Approximate length of cable tow: 0 m.

Applicant's Representative:
Jennifer White
US Geological Survey
400 Natural Bridges Drive
Santa Cruz, CA 95060
831-460-7485

California State Lands Representative:
Richard B. Greenwood
Statewide Geophysical Coordinator
200 Oceangate, 12th Floor
Long Beach, CA 90802-4331
(562) 590-5201

BOEM Representative:
Joan Barminski
Chief, Office of Reservoir & Production
770 Paseo Camarillo
Camarillo, CA 93010
(805) 389-7707

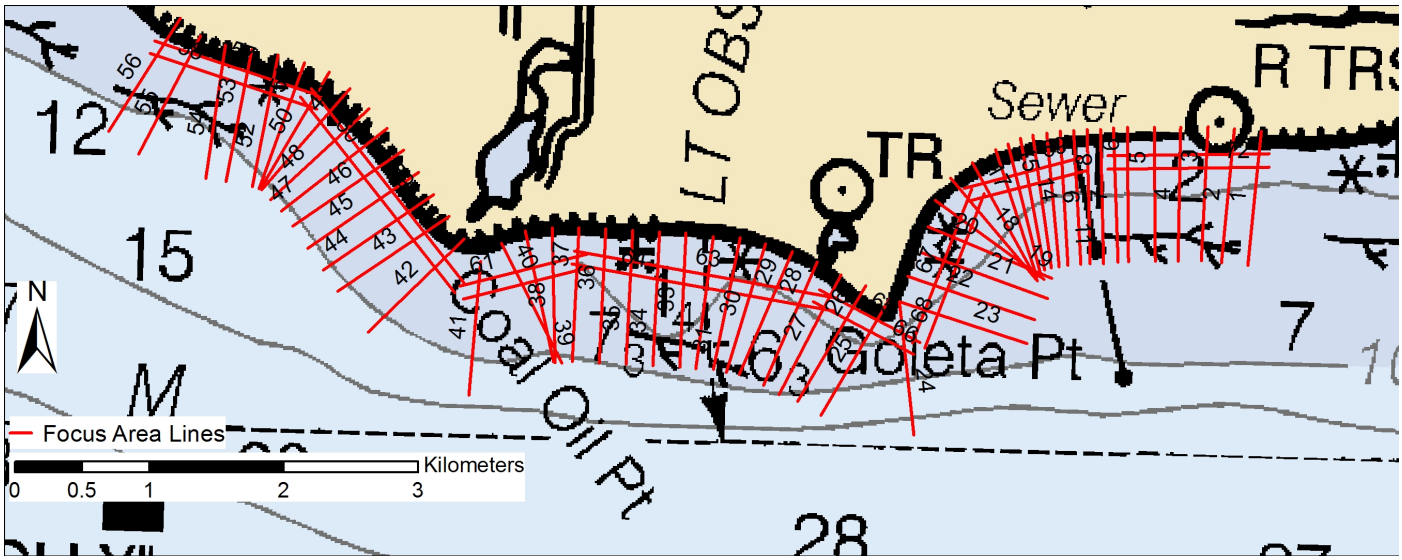

Figure 2a. Goleta focus area lines 1-72

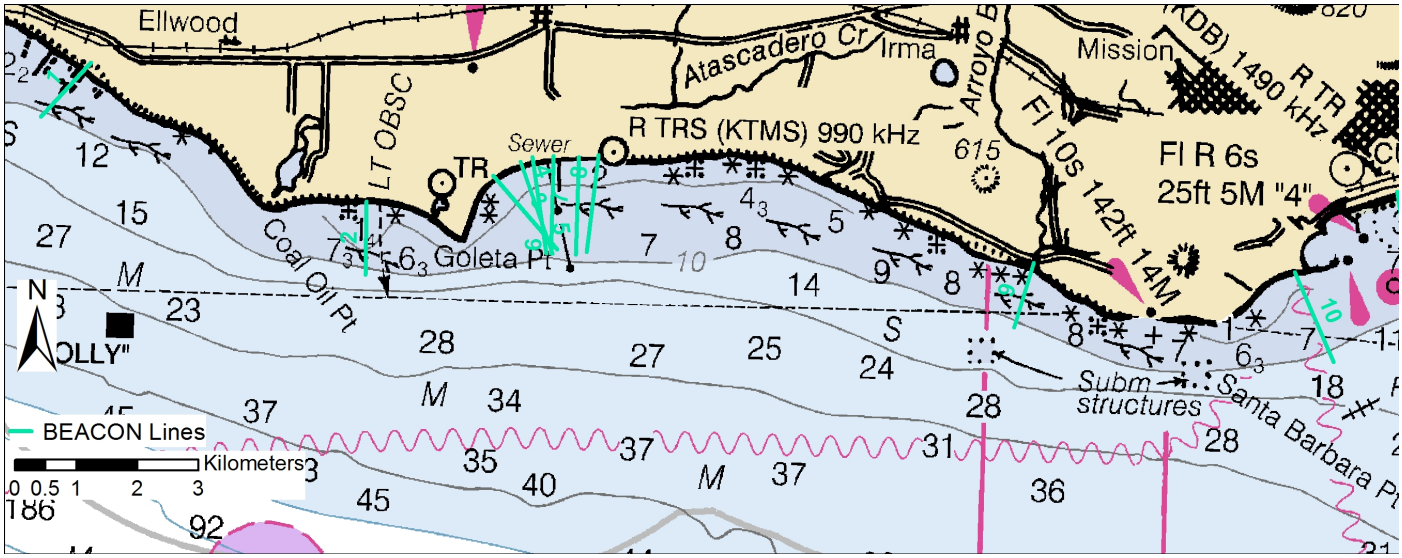

Figure 2b. Goleta-area BEACON lines 1-10

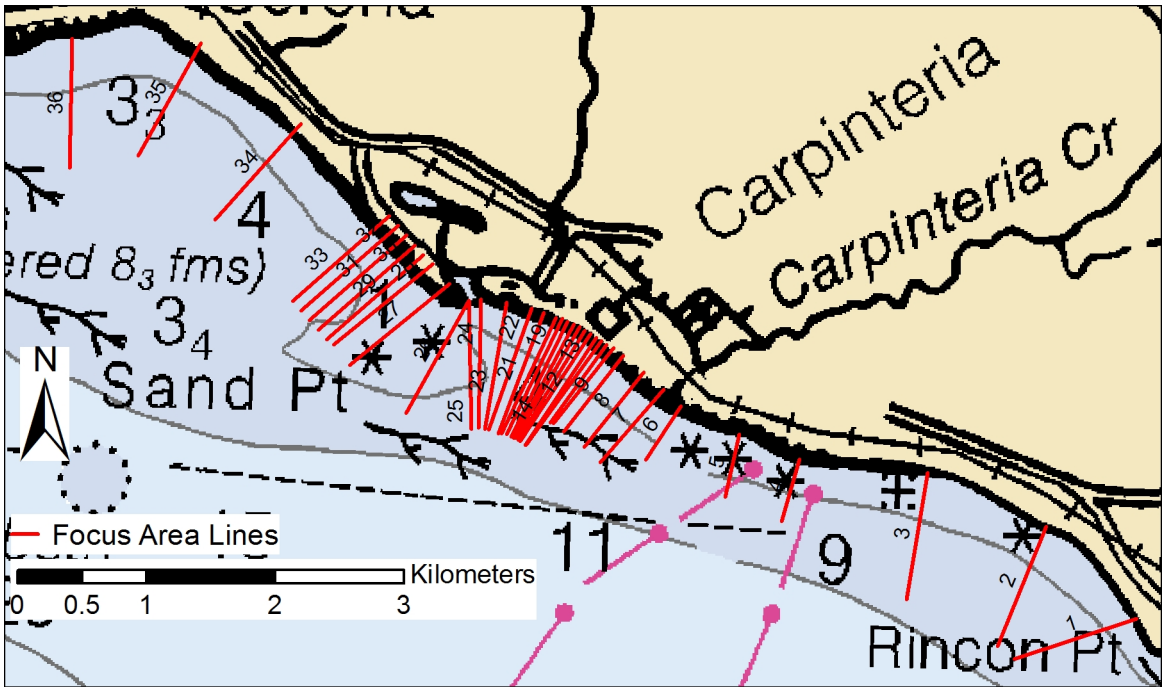

Figure 3a. Carpinteria focus area lines 1- 42

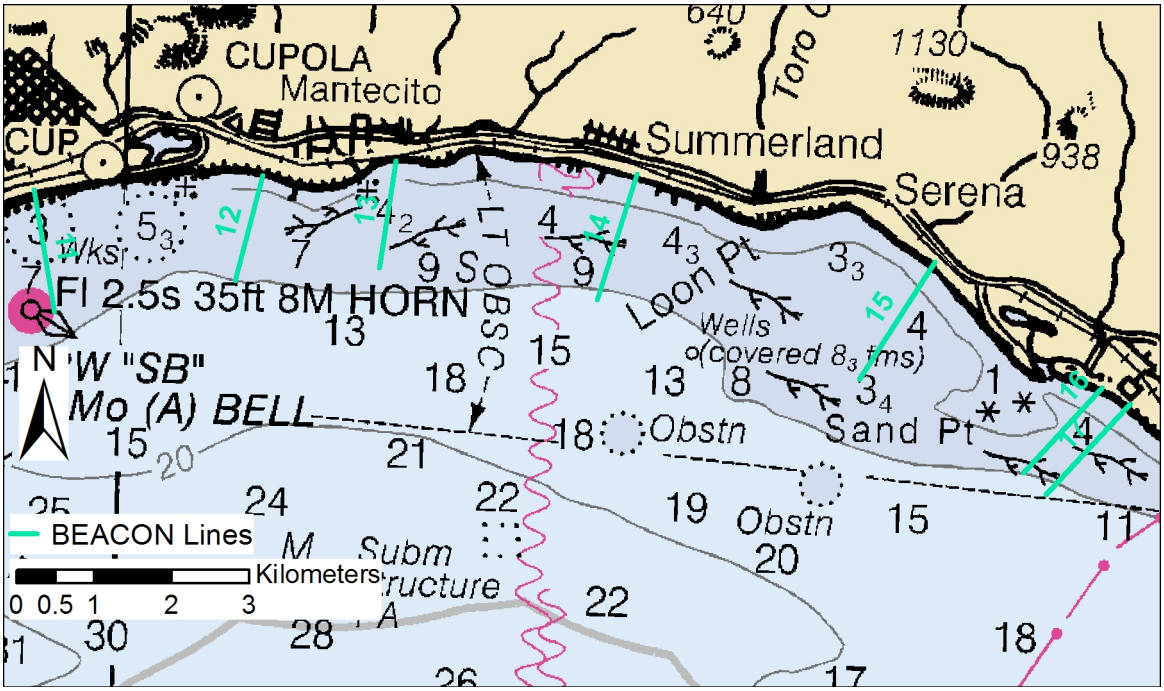

Figure 3b. Carpinteria area BEACON lines 11-17

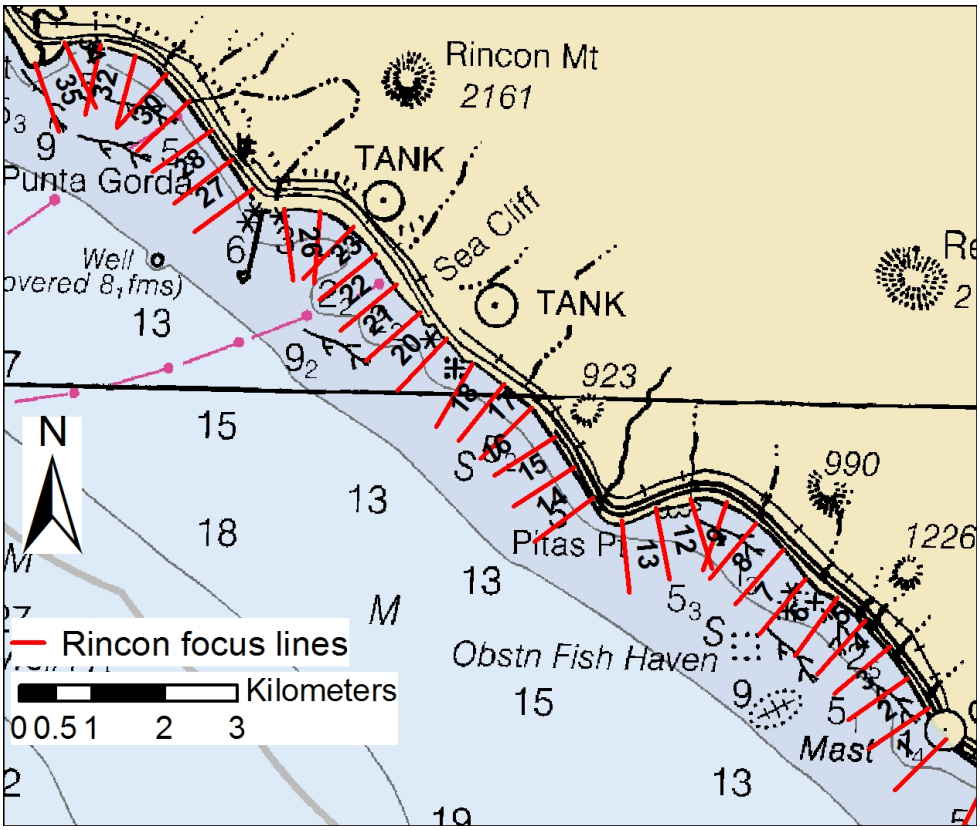

Figure 4a. Rincon focus area lines 1- 35

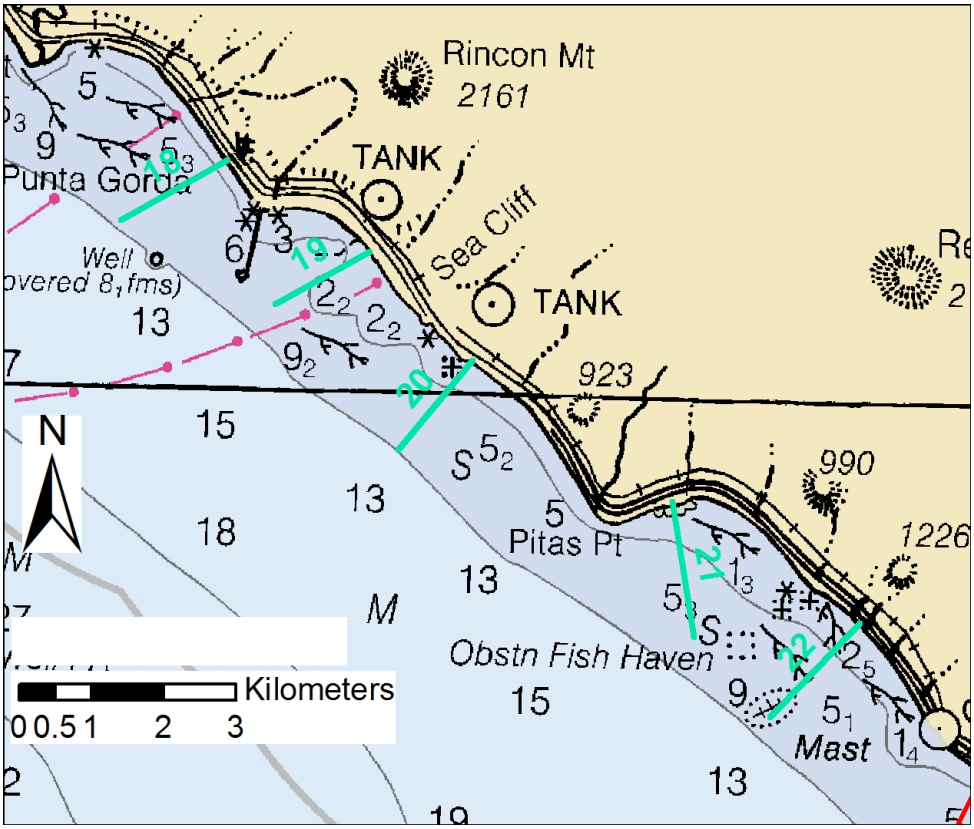

Figure 4b. Rincon-area BEACON lines 18-22

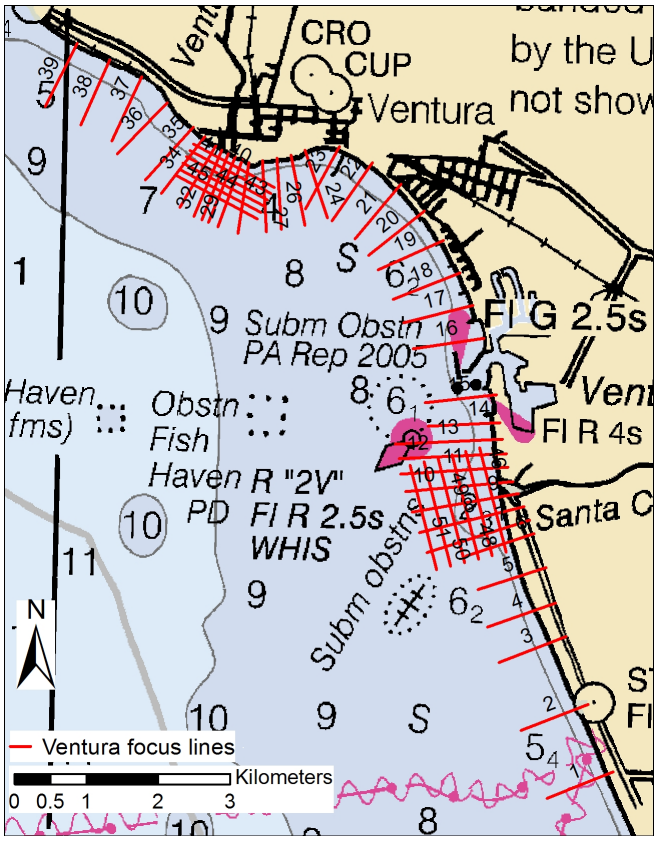

Figure 5a. Ventura focus area lines 1- 51

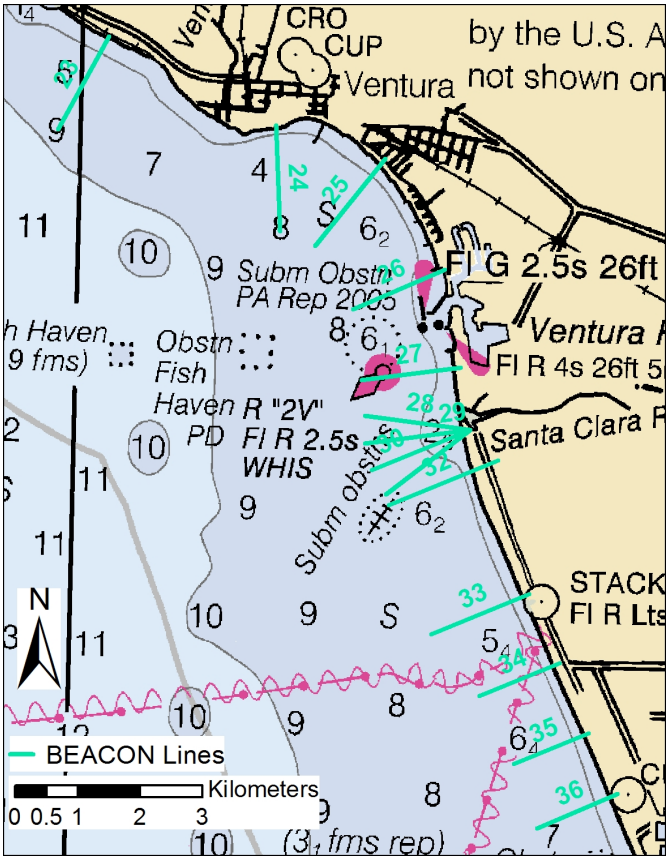

Figure 5b. Ventura-area BEACON lines 23-36

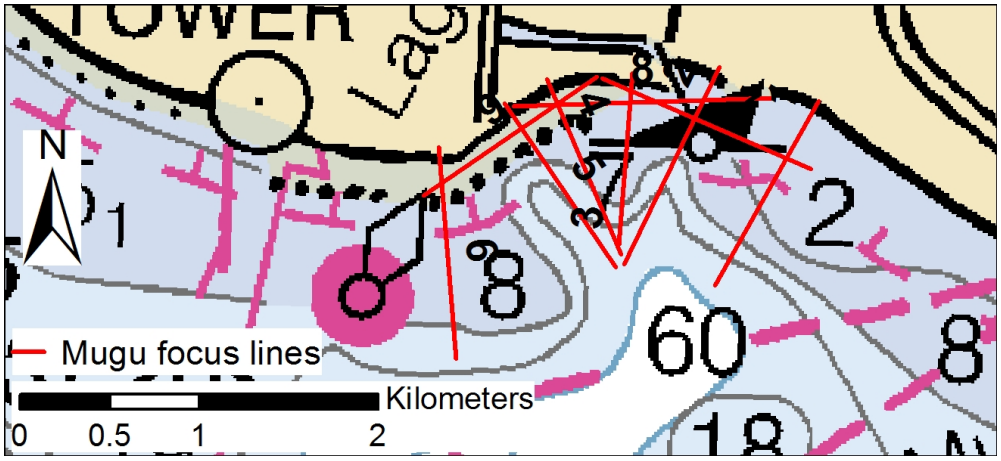

Figure 6a. Mugu focus area lines 1- 9

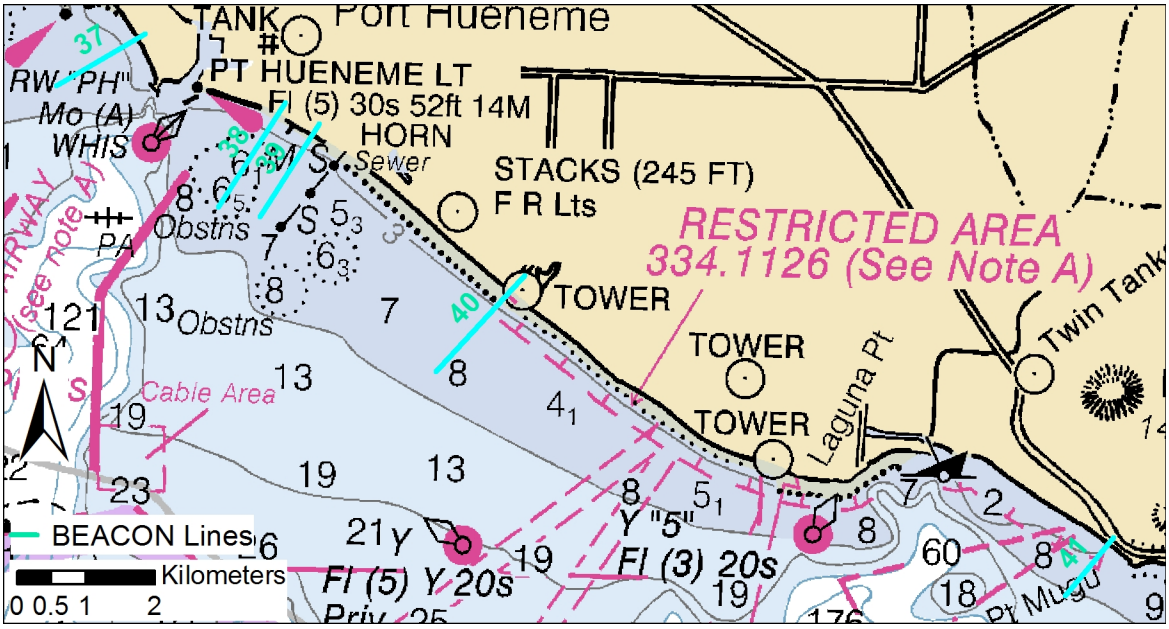

Figure 6b. Mugu-area BEACON lines 37-41

The overall survey area is bounded by the coordinates:

34° 4.877’	-119° 3.851’
34° 4.877’	-119° 55.254’
34° 25.733’	-119° 3.851’
34° 25.733’	-119° 55.254’

The focus area and associated BEACON line survey areas are bounded by the coordinates:

1a. Goleta focus

34° 23.777	-119° 54.519
34° 23.777	-119° 48.880
34° 25.369	-119° 54.519
34° 25.369	-119° 48.880

1b. Goleta-area BEACON

34° 23.386	-119° 55.254
34° 23.386	-119° 41.382
34° 25.733	-119° 55.254
34° 25.733	-119° 41.382

2a. Carpinteria focus

34° 22.335	-119° 34.233
34° 22.335	-119° 28.767
34° 24.844	-119° 34.233
34° 24.844	-119° 28.767

2b. Carpinteria-area BEACON

34° 22.969	-119° 40.751
34° 22.969	-119° 31.480
34° 25.183	-119° 40.751
34° 25.183	-119° 31.480

3a. Rincon focus

34° 17.130	-119° 28.628
34° 17.130	-119° 20.303
34° 22.564	-119° 28.628
34° 22.564	-119° 20.303

3b. Rincon-area BEACON

34° 17.646	-119° 27.816
34° 17.646	-119° 21.056
34° 21.709	-119° 27.816
34° 21.709	-119° 21.056

4a. Ventura focus

34° 11.659	-119° 20.175
34° 11.659	-119° 14.877
34° 17.289	-119° 20.175
34° 17.289	-119° 14.877

4b. Ventura-area BEACON

34° 10.427	-119° 20.225
34° 10.427	-119° 14.230
34° 17.208	-119° 20.225
34° 17.208	-119° 14.230

5a. Mugu focus

34° 5.132	-119° 6.472
34° 5.132	-119° 5.044
34° 6.031	-119° 6.472
34° 6.031	-119° 5.044

5b. Mugu-area BEACON

34° 4.877	-119° 13.916
34° 4.877	-119° 3.851
34° 9.122	-119° 13.916
34° 9.122	-119° 3.851

Track line start- and end-point coordinates for focus area lines are:

1. Goleta

Line	Start		End	
	Lon	Lat	Lon	Lat
1	-119.81539	34.41728	-119.81615	34.40829
2	-119.81756	34.41741	-119.81832	34.40842
3	-119.81971	34.41751	-119.81992	34.40850
4	-119.82192	34.41742	-119.82183	34.40841
5	-119.82406	34.41738	-119.82365	34.40837
6	-119.82623	34.41731	-119.82582	34.40830
7	-119.82733	34.41724	-119.82667	34.40824
8	-119.82840	34.41713	-119.82785	34.40813
9	-119.82948	34.41708	-119.82893	34.40808
10	-119.83057	34.41702	-119.82966	34.40802
11	-119.83164	34.41693	-119.83073	34.40794
12	-119.83274	34.41679	-119.83144	34.40781
13	-119.83384	34.41662	-119.83204	34.40773
14	-119.83486	34.41639	-119.83257	34.40757
15	-119.83585	34.41598	-119.83292	34.40730
16	-119.83683	34.41557	-119.83319	34.40709
17	-119.83869	34.41467	-119.83319	34.40691
18	-119.84040	34.41357	-119.83315	34.40685
19	-119.84160	34.41206	-119.83262	34.40698
20	-119.84215	34.41028	-119.83198	34.40705
21	-119.84262	34.40855	-119.83228	34.40568
22	-119.84367	34.40690	-119.83328	34.40425
23	-119.84426	34.40520	-119.83383	34.40264
24	-119.84426	34.40520	-119.84278	34.39628
25	-119.84510	34.40533	-119.85036	34.39744
26	-119.84700	34.40620	-119.85226	34.39831
27	-119.84907	34.40689	-119.85379	34.39874
28	-119.85103	34.40771	-119.85506	34.39934
29	-119.85305	34.40837	-119.85708	34.40000
30	-119.85524	34.40882	-119.85811	34.40012
31	-119.85728	34.40918	-119.85915	34.40030
32	-119.85946	34.40922	-119.86061	34.40030
33	-119.86168	34.40941	-119.86191	34.40040
34	-119.86385	34.40945	-119.86408	34.40044
35	-119.86602	34.40948	-119.86625	34.40048
36	-119.86820	34.40952	-119.86843	34.40051
37	-119.87037	34.40956	-119.87060	34.40055
38	-119.87252	34.40951	-119.87197	34.40048
39	-119.87472	34.40925	-119.87210	34.40050
40	-119.87658	34.40838	-119.87142	34.40043
41	-119.87821	34.40713	-119.87890	34.39813

42	-119.87962	34.40857	-119.88717	34.40214
43	-119.88088	34.41008	-119.88973	34.40482
44	-119.88218	34.41150	-119.89098	34.40621
45	-119.88346	34.41296	-119.89226	34.40766
46	-119.88473	34.41441	-119.89354	34.40912
47	-119.88611	34.41584	-119.89447	34.41008
48	-119.88762	34.41713	-119.89539	34.41083
49	-119.88919	34.41842	-119.89612	34.41149
50	-119.89091	34.41951	-119.89616	34.41161
51	-119.89296	34.42010	-119.89634	34.41153
52	-119.89508	34.42055	-119.89688	34.41167
53	-119.89723	34.42085	-119.89902	34.41197
54	-119.89938	34.42110	-119.90067	34.41214
55	-119.90143	34.42170	-119.90618	34.41364
56	-119.90308	34.42281	-119.90866	34.41508
57	-119.90514	34.42126	-119.89152	34.41785
58	-119.90546	34.42040	-119.89183	34.41699
59	-119.89236	34.41836	-119.87943	34.40553
60	-119.89320	34.41778	-119.88027	34.40495
61	-119.87987	34.40541	-119.86962	34.40781
62	-119.87958	34.40455	-119.86933	34.40694
63	-119.87070	34.40799	-119.84938	34.40534
64	-119.87087	34.40710	-119.84954	34.40445
65	-119.85079	34.40583	-119.84250	34.40251
66	-119.85126	34.40502	-119.84297	34.40170
67	-119.84313	34.40244	-119.83867	34.41289
68	-119.84211	34.40214	-119.83764	34.41259
69	-119.83928	34.41293	-119.82979	34.41520
70	-119.83898	34.41207	-119.82948	34.41434
71	-119.82776	34.41535	-119.81472	34.41581
72	-119.82772	34.41445	-119.81467	34.41491

2. Carpinteria

Line	Start		End	
	Lon	Lat	Lon	Lat
1	-119.47945	34.37531	-119.48970	34.37226
2	-119.48726	34.38158	-119.49114	34.37313
3	-119.49738	34.38516	-119.49893	34.37623
4	-119.50823	34.38587	-119.50962	34.38151
5	-119.51339	34.38751	-119.51442	34.38308
6	-119.51834	34.38938	-119.52123	34.38557
7	-119.51986	34.39053	-119.52506	34.38532
8	-119.52154	34.39172	-119.52646	34.38636
9	-119.52331	34.39284	-119.52819	34.38741
10	-119.52418	34.39338	-119.52906	34.38795
11	-119.52478	34.39358	-119.52937	34.38799
12	-119.52520	34.39383	-119.53134	34.38638
13	-119.52567	34.39406	-119.53141	34.38640
14	-119.52613	34.39430	-119.53187	34.38664
15	-119.52661	34.39453	-119.53205	34.38673
16	-119.52707	34.39478	-119.53228	34.38686
17	-119.52757	34.39495	-119.53240	34.38686
18	-119.52809	34.39513	-119.53264	34.38695
19	-119.52857	34.39534	-119.53302	34.38710
20	-119.52909	34.39539	-119.53346	34.38714
21	-119.53014	34.39571	-119.53370	34.38717
22	-119.53115	34.39599	-119.53455	34.38742
23	-119.53330	34.39636	-119.53484	34.38743
24	-119.53547	34.39653	-119.53543	34.38751
25	-119.53647	34.39642	-119.53601	34.38741
26	-119.53647	34.39642	-119.54153	34.38843
27	-119.53817	34.39756	-119.54640	34.39171
28	-119.53958	34.39893	-119.54782	34.39308
29	-119.54042	34.39955	-119.54842	34.39344
30	-119.54115	34.40021	-119.54916	34.39410
31	-119.54189	34.40087	-119.54989	34.39476
32	-119.54262	34.40154	-119.55063	34.39543
33	-119.54336	34.40220	-119.55137	34.39609
34	-119.55106	34.40850	-119.55810	34.40162
35	-119.55968	34.41398	-119.56471	34.40598
36	-119.57054	34.41407	-119.57046	34.40502

3. Rincon

	Start		End	
Line	Lon	Lat		
1	-119.33838	34.29198	-119.34594	34.28551
2	-119.34116	34.29576	-119.34998	34.29047
3	-119.34434	34.29942	-119.35316	34.29413
4	-119.34716	34.30329	-119.35530	34.29732
5	-119.35095	34.30652	-119.35793	34.29962
6	-119.35516	34.30933	-119.36132	34.30188
7	-119.36001	34.31153	-119.36670	34.30443
8	-119.36347	34.31510	-119.37046	34.30817
9	-119.36754	34.31825	-119.37432	34.31122
10	-119.37199	34.32086	-119.37544	34.31231
11	-119.37743	34.32112	-119.37395	34.31254
12	-119.38263	34.31988	-119.38027	34.31107
13	-119.38774	34.31823	-119.38631	34.30927
14	-119.39203	34.32097	-119.40063	34.31535
15	-119.39490	34.32475	-119.40388	34.31970
16	-119.39795	34.32848	-119.40693	34.32343
17	-119.40151	34.33203	-119.40903	34.32552
18	-119.40581	34.33487	-119.41242	34.32767
19	-119.41059	34.33730	-119.41576	34.32936
20	-119.41449	34.34042	-119.42172	34.33368
21	-119.41856	34.34354	-119.42654	34.33742
22	-119.42222	34.34693	-119.43041	34.34105
23	-119.42541	34.35060	-119.43373	34.34479
24	-119.42888	34.35404	-119.43615	34.34733
25	-119.43392	34.35585	-119.43456	34.34686
26	-119.43929	34.35602	-119.43765	34.34710
27	-119.44402	34.35841	-119.45267	34.35292
28	-119.44725	34.36202	-119.45577	34.35639
29	-119.45036	34.36559	-119.45917	34.36026
30	-119.45379	34.36915	-119.46152	34.36274
31	-119.45746	34.37245	-119.46456	34.36564
32	-119.46215	34.37471	-119.46465	34.36594
33	-119.46730	34.37595	-119.46944	34.36716
34	-119.47274	34.37607	-119.46780	34.36806
35	-119.47713	34.37339	-119.47323	34.36493

4. Ventura

	Start		End	
Line	Lon	Lat	Lon	Lat
1	-119.24794	34.19784	-119.25790	34.19431
2	-119.25196	34.20627	-119.26202	34.20281
3	-119.25557	34.21477	-119.26562	34.21131
4	-119.25729	34.21897	-119.26744	34.21574
5	-119.25879	34.22337	-119.26904	34.22041
6	-119.26072	34.22764	-119.27097	34.22464
7	-119.26145	34.22932	-119.27686	34.22492
8	-119.26233	34.23100	-119.27808	34.22747
9	-119.26326	34.23264	-119.27926	34.23003
10	-119.26409	34.23412	-119.28035	34.23259
11	-119.26487	34.23592	-119.28120	34.23477
12	-119.26520	34.23764	-119.28144	34.23672
13	-119.26585	34.23943	-119.28213	34.23851
14	-119.26623	34.24154	-119.27715	34.24088
15	-119.26693	34.24503	-119.27769	34.24383
16	-119.26897	34.25209	-119.27968	34.25058
17	-119.27075	34.25621	-119.28120	34.25382
18	-119.27285	34.26028	-119.28290	34.25674
19	-119.27546	34.26431	-119.28527	34.26043
20	-119.27839	34.26799	-119.28673	34.26223
21	-119.28211	34.27132	-119.28887	34.26423
22	-119.28649	34.27393	-119.29241	34.26647
23	-119.29150	34.27588	-119.29648	34.26786
24	-119.29677	34.27528	-119.29307	34.26681
25	-119.29884	34.27462	-119.29652	34.26582
26	-119.30096	34.27424	-119.30002	34.26525
27	-119.30313	34.27389	-119.30228	34.26490
28	-119.30521	34.27358	-119.30659	34.26463
29	-119.30619	34.27395	-119.30967	34.26538
30	-119.30727	34.27431	-119.31112	34.26589
31	-119.30832	34.27464	-119.31212	34.26618
32	-119.30935	34.27504	-119.31334	34.26662
33	-119.31025	34.27560	-119.31550	34.26773
34	-119.31195	34.27672	-119.31837	34.26945
35	-119.31369	34.27788	-119.32083	34.27109
36	-119.31776	34.28086	-119.32514	34.27426
37	-119.32170	34.28410	-119.32606	34.27586
38	-119.32657	34.28612	-119.33080	34.27781
39	-119.33157	34.28814	-119.33626	34.28001
40	-119.31369	34.27573	-119.30127	34.27053
41	-119.31417	34.27493	-119.30176	34.26973
42	-119.31466	34.27413	-119.30225	34.26892
43	-119.31515	34.27332	-119.30274	34.26812

44	-119.31564	34.27252	-119.30323	34.26731
45	-119.31613	34.27171	-119.30372	34.26651
46	-119.26927	34.23830	-119.26491	34.22523
47	-119.27136	34.23781	-119.26700	34.22475
48	-119.27345	34.23733	-119.26909	34.22427
49	-119.27554	34.23685	-119.27119	34.22378
50	-119.27764	34.23637	-119.27328	34.22330
51	-119.27973	34.23589	-119.27537	34.22282

5. Mugu

	Start		End	
Line	Lon	Lat	Lon	Lat
1	-119.08407	34.09890	-119.09014	34.08951
2	-119.09011	34.10052	-119.09566	34.09047
3	-119.09538	34.10014	-119.09601	34.09146
4	-119.10057	34.09973	-119.09585	34.09098
5	-119.10312	34.09846	-119.09616	34.09032
6	-119.10701	34.09619	-119.10570	34.08553
7	-119.08445	34.09549	-119.09720	34.09982
8	-119.08688	34.09901	-119.10254	34.09832
9	-119.09753	34.09989	-119.10787	34.09372

Track line start- and end-point coordinates for BEACON lines are:

	Start		End	
Line	Lon	Lat	Lon	Lat
1	-119.91231	34.42889	-119.92090	34.42074
2	-119.86257	34.40959	-119.86238	34.39877
3	-119.84018	34.41388	-119.82835	34.40330
4	-119.83536	34.41611	-119.82917	34.40263
5	-119.83325	34.41682	-119.83028	34.40261
6	-119.82944	34.41708	-119.82949	34.40265
7	-119.82499	34.41704	-119.82505	34.40261
8	-119.82152	34.41737	-119.82309	34.40300
9	-119.74352	34.40319	-119.74666	34.39362
10	-119.69699	34.40287	-119.68971	34.38977
11	-119.67918	34.41519	-119.67594	34.40102
12	-119.64720	34.41756	-119.65070	34.40528
13	-119.62850	34.41971	-119.63043	34.40719
14	-119.59464	34.41884	-119.59983	34.40413
15	-119.55258	34.40951	-119.56276	34.39565
16	-119.52864	34.39541	-119.53941	34.38525
17	-119.52466	34.39365	-119.53616	34.38282
18	-119.44769	34.36182	-119.46360	34.35402
19	-119.42605	34.35087	-119.44009	34.34399
20	-119.41016	34.33759	-119.42097	34.32628
21	-119.37959	34.32062	-119.37581	34.30378
22	-119.35093	34.30608	-119.36413	34.29410
23	-119.32858	34.28680	-119.33709	34.27320
24	-119.29913	34.27450	-119.29799	34.25920
25	-119.27994	34.27009	-119.29183	34.25721
26	-119.26922	34.25420	-119.28502	34.24822
27	-119.26607	34.24010	-119.28325	34.23797
28	-119.26415	34.23112	-119.28249	34.23285
29	-119.26415	34.23112	-119.28240	34.22885
30	-119.26415	34.23112	-119.28107	34.22501
31	-119.26415	34.23112	-119.27859	34.22158
32	-119.25916	34.22684	-119.27807	34.22001
33	-119.25323	34.20762	-119.27015	34.20150
34	-119.24763	34.19773	-119.26156	34.19270
35	-119.24237	34.18765	-119.25530	34.18297
36	-119.23717	34.17902	-119.25099	34.17378
37	-119.21807	34.15203	-119.23194	34.14497
38	-119.19580	34.14347	-119.20601	34.12964
39	-119.19041	34.14073	-119.19948	34.12844
40	-119.15763	34.12161	-119.17129	34.10879
41	-119.06418	34.08903	-119.07161	34.08128

White, Jennifer <jennifer_white@usgs.gov>

Pre-survey Notice of Geophysical Survey Operations - Goleta to Point Mugu - Geophysical Coordinator and Notice to Mariners

White, Jennifer <jennifer_white@usgs.gov> Wed, Aug 2, 2017 at 8:30 AM
Draft To: "SLCOGPP@SLC" <slc.ogpp@slc.ca.gov>, D11LNM@uscg.mil
Cc: "richard.greenwood" <Richard.Greenwood@slc.ca.gov>, "Keen, Kelly@SLC" <Kelly.Keen@slc.ca.gov>

PRE SURVEY NOTIFICATION FOR GEOPHYSICAL SURVEY

The USGS Pacific Coastal and Marine Science Center (PCMSC) will be conducting two six-day near shore geophysical surveys from Goleta to Point Mugu, CA under California State Lands Permit #8394. Bathymetric surveys using two personal watercraft, each equipped with a 200 kHz single beam echo sounder, will include cross shore transects from within the surf zone out to 1200m from shore to document the effects of large wave events on seafloor morphology. One survey inside each of the following three operational windows will be chosen based on scheduling and conditions.

September 4-10, 2017

September 18-26, 2017

October 2-11, 2017

In keeping with our California State Lands Permit requirements, we are providing you with the attached Geophysical Pre-Survey Notice for your information.

--
Jenny White
Marine Operations Manager
Pacific Coastal and Marine Science Center
U.S. Geological Survey
(831) 818-8915 cell
(831) 460-7485 work

CSLC EXHIBIT F - Goleta to Point Mugu Sept 2017 - Mar 2018.docx
9835K

White, Jennifer <jennifer_white@usgs.gov>

Pre-survey Notice of Geophysical Survey Operations - Goleta to Point Mugu - Harbormasters

White, Jennifer <jennifer_white@usgs.gov> Wed, Aug 2, 2017 at 8:32 AM
Draft To: CIHarborVisitors@ventura.org, jhiggins@venturaharbor.com, mkronman@santabarbaraca.gov, ktreiberg@santabarbaraca.gov, smarble@ocsd.org, harbormaster@portofhueneme.org
Cc: "richard.greenwood" <Richard.Greenwood@slc.ca.gov>, "Keen, Kelly@SLC" <Kelly.Keen@slc.ca.gov>

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CSLC EXHIBIT F - Goleta to Point Mugu Sept 2017 - Mar 2018.docx
9835K

White, Jennifer <jennifer_white@usgs.gov>

Pre-survey Notice of Geophysical Survey Operations - Goleta to Point Mugu - Dive Shops

White, Jennifer <jennifer_white@usgs.gov> Wed, Aug 2, 2017 at 8:34 AM
Draft To: cmcdiver@aol.com, mail@centralcoastkayaks.com, info@santabarbarascuba.com, jeff@pacificwilderness.com, dive@scubadivela.com
Cc: "richard.greenwood" <Richard.Greenwood@slc.ca.gov>, "Keen, Kelly@SLC" <Kelly.Keen@slc.ca.gov>

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CSLC EXHIBIT F - Goleta to Point Mugu Sept 2017 - Mar 2018.docx
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Marine Wildlife Mitigation Plan
Santa Barbara Bathymetric Surveys

(September 4, 2017 – March 30, 2018)

1.0 INTRODUCTION

This marine wildlife mitigation plan is prepared in compliance with the USGS Pacific Coastal and Marine Science Center's existing State Geophysical Permit PRC 8394. This plan is intended to provide guidance to USGS vehicle operators and scientific field personnel collecting geophysical data for the Pacific Coastal and Marine Science Center (PCMSC) in Santa Cruz, CA to avoid significant impacts to marine wildlife that may occur during regular geophysical surveys.

1.1 Regulatory Basis

Species that are either currently in danger or soon likely to be in danger of extinction throughout all or a portion of its range are protected by the Endangered Species Act of 1973. The United States Fish and Wildlife Service (USFWS), and the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) implement the Endangered Species Act. During the consultation with NMFS to issue a permit for the offshore geophysical survey, it was determined no incidental take permits are required to use the equipment identified in this document to conduct scientific data acquisition in federal waters offshore of the California coast.

1.2 Geophysical Survey Purpose and Objectives

The USGS Pacific Coastal and Marine Science Center is studying the effects of waves, currents and human activity on the coastline and adjacent seabed in the Santa Barbara littoral cell, from Goleta to Pt. Mugu. The Santa Barbara littoral cell is subject to a variety of wave forcing regimes, with varying degrees of sheltering from swell by offshore islands, and includes extensive coastal developments that are vulnerable to wave-driven erosion. In 2005, we began conducting research and monitoring in the Santa Barbara littoral cell to obtain quantitative data on beach behavior and on processes affecting sediment transport.

Targeted bathymetric surveys will build on our earlier research by extending our beach and sub tidal monitoring program to near-decadal and hopefully longer timescales. The ultimate goal of this project is to identify and quantify the physical processes that control nearshore and beach morphology, enabling government agencies to make informed management decisions.

PCMSC will contact the NOAA Long Beach Office staff and local whale-watching operations to acquire information on the current composition and relative abundance of marine wildlife offshore as well as any pinniped haul out sites. Additionally, one day prior to survey activities, the NOAA Long Beach office, local whale watching operations will be contacted

to get an update on marine wildlife sightings in the area. This information will be conveyed to the captain and crew prior to the survey.

A review of environmental responsibility of project operations will be conducted by the chief scientist in charge of the survey operations prior to commencing the first day of operations. When new personnel will be in the crew, this training will be repeated at least for those new to the crew. They will be made aware of their individual responsibility and will be shown how to be aware of possible environmental impacts and how to mitigate them during the geophysical survey operations. Information relating to seasonality, as an indication of the types of animals that might be in our survey area, at the time of survey work will also be presented to the crew. A copy of this document will be provided to the crew of our survey vehicles.

All personnel will be expected to be consistently aware that they are to be alert to any presence of marine wildlife while they are performing their duties. There are a number of signs/indications of marine wildlife presence and each crew member will be responsible to maintain vigilance for those signs within the constraints of their project duties. Some of those indications are:

a. Sounds - such as splashing, vocalizations (by animals and birds), and blowing (breathing).

b. Visual indications - birds aggregating, changes in water character such as areas of rippled water, white water caused by splashing, changes in color or shape of the ocean surface

1.3 Survey Schedule and Layout

The project schedule will be from September 4, 2017 through March 30, 2018. One survey will be conducted near the beginning of the project period to document end-of-summer nearshore bathymetric conditions prior to arrival of winter waves. A second "Spring" survey will be performed near the end of the project period to document the effect of winter waves on bathymetric conditions. For safety reasons, the survey vehicles are always used in tandem—two at a time— with personnel support on the adjacent beach. Permits and permissions for beach use have been obtained from Santa Barbara County Parks (Goleta), California State Parks (Carpinteria, San Buenaventura, and McGrath State beaches) and UC Santa Barbara (Coal Oil Point reserve). Survey vehicles will be launched from Santa Barbara, Ventura, or Channel Islands Harbor, and will transit at safe speeds to the survey locations. Surveys normally will be conducted during spring high tides, and across-shore transects will be surveyed from the surf zone (about 1 m depth) to 1-2 km offshore. Survey vehicle operators will operate on survey lines only when conditions are safe and swimmers, paddlers, and wildlife are not present. Data collected in this region are critical however, as most of the sand movement in nearshore areas occurs at shallow depths (typically less than 3m). Sediment volume changes will be calculated from profile data to determine the rates of net sediment transport between different reaches of the beach, as well as the rates of net on- or offshore transport. This will aid in determining littoral drift rates and in constructing a sediment budget for the system.

2.0 Survey Equipment and Activities

Nearshore mapping will utilize two USGS Coastal Profiling Systems (CPS), which consist of a personal watercraft instrumented with GPS-based mapping systems and fathometers. The CPS are identical to the systems used in previously permitted research in the Monterey Bay National Marine Sanctuary (see Storlazzi et al., 2007). CPS are not operated in high surf (generally greater than 5 feet) or in difficult weather conditions such as fog or rain. All CPS operators are USGS employees, insured, and safety-certified by the U.S. Department of Interior.

PCMSC proposes to use the following equipment to collect the required data:

- Odom Echotrac CV100 echo sounder using a 200 kHz, 9° downward conical beam transducer

The proposed survey will require the use of a marine vehicle and in-water equipment that generate noise during data acquisition. The results of modeling of the noise generated by the survey equipment is shown in Table 1. Those results indicate that operational source level used for these surveys are less than 160 dB at any range.

Table 1. Distances to Received Pressure Levels from Equipment Sound Source

Sounder System	Frequency (kHz)	Source Level (dB peak)	Source Level (dB rms)	Distance toSL160 dBrms (meters)	Distance to SL 180 dB (rms) (meters)	Distance toSL190 dB (rms) (meters)
Odom Echotrac CV100 Echo Sounder	200 kHz	109	93	<1	<1	<1

These estimates are based on the underwater sound propagation equation:

RSPL= SL-20log (R/Ro)-AR where,
RSPL=Recieved sound potential level
SL= RMS source level re. 1 uPa (rms) based on manufacturer's specifications
R= Distance
Ro= Reference Distance (1 m)
A= sound absorption coefficient

The greatest distance from the sound source to the 160 dB level (<1 m for the proposed equipment) is considered the "safety zone" for this equipment. However, because the operating frequency of 200 kHz is above the cutoff hearing threshold for marine mammals, CSLC has determined that the observance of the "safety zones" is not a requirement for this survey (personal communication, K. Keen, CSLC).

3.0 Marine Wildlife

3.1 Marine Wildlife

The following discusses the marine wildlife that have been recorded within the project region, those taxa that are most likely to be within the larger project region during survey operations, and methods that will be instituted by the vehicle operator to reduce or eliminate potential impacts to marine wildlife during transit and survey operations.

Table 2 provides information on trends in the populations of marine wildlife that are expected to be or have been reported within the Project area.

Table 2: Abundance Estimates for Marine Mammals and Reptiles of California Unless Otherwise Indicated

Common Name ***Scientific Name***	**Population Estimate**	**Current Population Trend**
REPTILES		
Cryptodira		
Olive Ridley turtle *Lepidochelys olivacea*	1.39 million (Eastern Tropical Pacific)**	Increasing
Green turtle *Chelonia mydas*	3,319-3,479** (Eastern Pacific Stock)	Increasing
Loggerhead turtle *Caretta caretta*	1,000 (California)**	Decreasing
Leatherback turtle *Dermochelys coriacea*	178 (California)**	Decreasing
MAMMALS		
Mysticeti		
California gray whale *Eschrichtius robustus*	18,017 (Eastern North Pacific Stock)	Fluctuating annually
Fin whale *Balaenoptera physalus*	2,624 (California/Oregon/Washington Stock)	Increasing off California
Humpback whale *Megaptera novaeangliae*	1,878 (California/Oregon/Washington Stock)	Increasing
Blue whale *Balaenoptera musculus*	2,046 (Eastern North Pacific Stock)	Unable to determine
Minke whale *Balaenoptera acutorostrata*	202 (California/Oregon/Washington Stock)	No long-term trends suggested
Northern right whale *Eubalaena japonica*	17 (based on photo-identification) (Eastern North Pacific Stock)	No long-term trends suggested
Sei whale *Balaenoptera borealls*	83 (Eastern North Pacific Stock)	No long-term trends suggested
Odontoceti		
Short-beaked common dolphin *Delphinus delphis*	343,990 (California/Oregon/Washington Stock)	Unable to determine
Long-beaked common dolphin *Delphinus capensls*	17,127 (California Stock)	Unable to determine
Dall's porpoise *Phocoenoides dalli*	32,106 (California/Oregon/Washington Stock)	Unable to determine
Harbor porpoise *Phocoena phocoena*	1,478 (Morro Bay Stock)	Increasing
Pacific white-sided dolphin *Lagenorhynchus obllquldens*	21,406 (California/Oregon/Washington Stock)	No long-term trends suggested
Risso's dolphin *Grampus griseus*	4,913 (California/Oregon/Washington Stock)	No long-term trends suggested
Short-finned pilot whale *Globicephala macrorhynchus*	465 (California/Oregon/Washington Stock)	No long-term trends suggested

Bottlenose dolphin *Turslops truncates*	684 (California/Oregon/Washington Offshore Stock)	No long-term trends suggested
	290 (California Coastal Stock)	No long-term trends suggested
Northern right whale dolphin *Llssopelphis borealis*	6,019 (California/Oregon/Washington Stock)	No long-term trends suggested
Sperm whale *Physeter macrocephalus*	751 (California/Oregon/Washington Stock)	No long-term trends suggested
Killer whale Orcinus orca	85 (Eastern North Pacific Southern Resident Stock)	Decreasing
	162 (Eastern North Pacific Offshore Stock)	No long-term trends suggested
Pinnipedia		
California sea lion *Zalophus californianus*	141,842 (U.S. Stock)	Unable to determine; increasing in most recent three year period
Northern fur seal *Callorhinus ursinus*	5,395 (San Miguel Island Stock)	Increasing
Guadalupe fur seal *Arctocephalus townsendi*	3,028 (Mexico Stock) Undetermined in California	Increasing
Northern (Steller) sea lion *Eumetopias jubatus*	2,479 California Stock	Decreasing
Northern elephant seal *Mirounga angustirostris*	74,913	Increasing
Pacific harbor seal *Phoca vitulina richardsi*	31,600	Stable
Fissipedia		
Southern sea otter *Enhydra lutris nereis*	2,711*	Unable to determine

Estimates provided by National Marine Fisheries Service (NOAA Fisheries 2011) *

Estimate provided by USGS (2010)

** Estimates provided by National Marine Fisheries Service (NMFS) (2004), Marquez, et al. (2002), Eguchi et ai. (2007), Benson et al. (2007), and NMFS (2007). Estimates are based on number of current numbers of nesting females.

During the transit periods, there is a potential for encountering marine wildlife. Table 3 lists those species that are likely to occur in the survey area

Table 3. Marine Wildlife Species and Most Likely Periods of Occurrence within the Survey Area

Family Common Name	Month of Occurrence [1]											
	J	F	M	A	M	J	J	A	S	O	N	D
REPTILES												
Cyptodira												
Olive Ridley turtle *(T)* [2]												
Green turtle (T) [1],[2]												
Loggerhead turtle (T) [2]												
Leatherback turtle (E) [2]												
MAMMALS												
Mysticeti												
California gray whale												
Blue whale (E)												
Fin whale (E)												
Humpback whale (E)												
Minke whale												
Sei whale (E)												
Northern right whale (E)												
Odontoceti												
Short-beaked common dolphin												
Dall's porpoise												
Harbor porpoise												
Long-beaked common dolphin												
Pacific white-sided dolphin												
Risso's dolphin												
Sperm whale												
Short-finned pilot whale												
Bottlenose dolphin												
Northern right whale dolphin												
Killer whale												
Pinnipedia												
Northern fur seal [3]												
California sea lion												
Northern elephant seal [4]												
Pacific harbor seal												
Guadalupe fur seal (T)												
Steller sea lion												
Fissipedia												
Southern sea otter (T) [5]												
Relatively uniform distribution		Not expected to occur					Most likely to occur due to seasonal distribution					

(E) Federally listed endangered species.
(T) Federally listed threatened species.
(1) Not Used
(2) Rarely encountered, but may be present year-round. Greatest abundance during July through September.
(3) Only a small percent occur over continental shelf (except near San Miguel rookery, May-November).
(4) Common near land during winter breeding season and spring molting season.
(5) Only nearshore (diving limit 100 feet).
Sources: Bonnell and Dailey (1993), NOAA Fisheries (2011), NCCOS (2007)

4.0 ONBOARD MITIGATIONS

4.1 Fishing Gear Clearance

In addition to submitting the required Notice to Mariners that will advise commercial fishers of pending on-water activities, prior to the start of each survey day the vehicles will traverse the proposed survey corridor for that day to note and record the presence of deployed fishing gear. No survey lines within 30 m (100 ft) of the observed fishing gear will be completed. The survey crew will not remove or relocate any fishing gear; removal or relocation will only be accomplished by the owner or by an authorized CDFG agent.

4.3 Marine Wildlife Monitoring

NOAA does not require exclusion/safety zones to be monitored. The operational source level for these survey operations is 93 dB RMS at 200 kHz, well below the maximum 160 dB sound level considered safe for operating in the proximity of marine mammals. Because there is only one CPS operator on board the survey vehicle during survey operation, their primary responsibilities during survey operations is the safe operation of the vehicle and operation of the data acquisition system, it is not possible for them to log wildlife observation data. However, the operator will provide a narrative of any sightings or encounters with marine wildlife during the day's survey operations and these narratives will be provided in the summary report for each survey.

4.3 Mitigations During Transit and Survey

The research vehicles will transit during daylight hours from Santa Barbara, Ventura, or Channel Islands harbors. During transits, there is a potential for encountering marine wildlife and the vehicle operators will take every precaution to avoid close proximity to wildlife. During transits, the vehicle will maintain a minimum distance of 100 m (1,640 ft.) from observed animals. If the vehicle operator observes a marine mammal within the path of the transiting vehicle, they will immediately slow the vehicle and/or change course in order to avoid contact.

Cetaceans (whales) vary in their swimming patterns and duration of dives and therefore all shipboard personnel will be watchful as the vehicle crosses the path of a whale or anytime whales are observed in the area.

If whales are observed during transits, the vehicle operator will institute the following measures:

- Maintain a minimum distance of 100 m from sighted whales;
- Do not cross directly in front of or across the path of sighted whales;
- When transit directions is parallel to whale path, maintain constant speed that is not greater than the whales speed, or alter transit direction away from whale path;
- Do not position the vehicle in such a manner to separate female whales from their

calves;

- If a whale engages in evasive or defensive action, slow the vehicle and move away from the animal until the animal calms or moves out of the area.

During survey operations, the vehicle will maintain a survey speed of approximately 4 knots and will maintain a heading that coincides with survey track lines. If marine wildlife is observed within the vicinity of the vehicle, the vehicle operator will take precautions to avoid collision, ending and restarting the track line survey if necessary.

If a collision with marine wildlife occurs, the vehicle operator will document the conditions under which the accident occurred, including the following:

- Location of the vehicle when the collision occurred (latitude and longitude);
- Date and time;
- Speed and heading of the vehicle;
- Observed conditions (e.g., wind speed and direction, swell height, visibility in miles or kilometers, and presence of rain or fog);
- Species of marine wildlife contacted; and
- Organization, vehicle ID and name of master in charge of the vehicle at time of accident.

In accordance with NOAA requirements, after a collision, the vehicle should stop, if safe to do so. The vehicle may proceed after confirming that it will not further damage the animal by doing so. The vehicle will then communicate by radio or telephone all details to the vehicle's base of operations. The PCMSC Marine Operations Superintendent will contact the Stranding Coordinator, NMFS, Southwest Region, Long Beach, to obtain instructions. Alternatively, the vehicle captain may contact the NMFS Stranding Coordinator directly using the marine operator to place the call or directly from an onboard telephone, if available to:

NOAA Southwest Regional Stranding Coordinator
National Marine Fisheries Service
501 West Ocean Blvd, Suite 4200
Long Beach, CA 90802-4213
562-980-4017
Contact: Justin Viezbicke
Email: justin.viezbicke@noaa.gov

It is unlikely that the vehicle will be asked to stand by until NOAA or CDFG personnel arrive, however this will be determined by the Stranding Coordinator. According to the MMPA, the vehicle operator is not allowed to aid injured marine wildlife or recover the carcass unless requested to do so by the NOAA Stranding Coordinator.

Although NOAA has primary responsibility for marine mammals in both state and federal waters, the CDFG will also be advised that an incident has occurred in state waters affecting a protected species. Reports should be communicated to the federal and state agencies listed below:

Federal	**State**	**State**
Justin Viezbicke, California Stranding Coordinator National Marine Fisheries Service Long Beach, California (562) 980-4017	Enforcement Dispatch Desk California Department of Fish and Wildlife Long Beach, California (562) 590-5132	California State Lands Commission Division of Environmental Planning and Management Sacramento, California (916) 574-1938

4.4 Operational Measures

Soft Start

The soft-start technique required for sonar equipment operating above the hearing threshold for marine mammals at 200 kHz is predicated on research investigations of low frequency side lobes for 200 kHz sonar systems (Deng et al., 200 kHz Commercial Sonar Systems Generate Lower Frequency Side Lobes Audible to Some Marine Mammals, PLOS ONE, 2014). This work was based on a measured 90 kHz sub harmonic at 141 dB re. 1µPA @ 1m generated by a 200 kHz sonar signal at 195 dB re. 1µPA @ 1m and a marine mammal hearing threshold of 70 dB . Modeling of our system's equivalent source levels based on their measurements, our echo sounder would generate a 90 kHz harmonic at 69 dB re. 1µPA @ 1m, which is below the hearing threshold of concern, within 1 m from the vehicle. We conclude from this that a soft start technique has no practical application for our survey operations. However, we nonetheless intend to take a conservative approach by increasing power upon startup at a 25% increase in power from zero to our operational power level of 93 dB over a five minute period.

Wildlife Monitoring

Marine wildlife monitoring will not be required by onboard personnel for these operations, but the operator will provide a narrative of any observations that occur within the survey area. Because the survey echo sounder operates at 200 kHz, no safety zone is required. However, USGS will take the following precautionary measures:

- Not approach within 91 m of haul-out site (Table 4), consistent with NMFS guidelines;
- Expedite survey activity in haul-out areas in order to minimize the potential for disturbance of pinnipeds on land;
- Continuously monitor the survey area to ascertain the presence, species and location of any marine wildlife in the intended survey area. The vehicle master and onboard personnel will be watchful when whales or other marine mammals are observed in the area. The vehicle operator shall observe the following guidelines:

- Make every effort to maintain distance from sighted marine mammals and other marine wildlife;
- Do not cross directly in front of (perpendicular to) migrating whales or any other marine mammal or turtle;
- When paralleling marine mammals or turtles, the vehicle will operate at a constant speed that is not faster than that of the animals;
- Care will be taken to ensure female whales are not separated from their calves; and, if a whale engages in evasive or defensive action, the vehicle will reduce speed or stop until the animal calms or moves out of the area.

Table 4 Pinniped Haul Out Locations

LOCATION	SPECIES	LATITUDE	LONGITUDE
Carpinteria Bluffs, Carpinteria, CA	Harbor Seal	34.39	-119.51
Point Mugu Lagoon, CA	Harbor Seal	34.10	-119.09

Vehicle Speed

The CPS operator will refrain from erratic operating behavior when transiting to the survey site and shall operate at, or less than, a speed of approximately 4 knots once on survey station.

Limitations on equipment usage

Limitations on the frequency, pulse length, and pulse rate will be implemented to reduce potential harmful noises. The shortest possible pulse length and lowest pulse rate (pings per second) will be used, dependent on water depth.

4.5 Monitoring Reporting

A Post Survey Field Operations and Compliance Report will be submitted to CSLC staff as soon as possible but no more than 30 days after the completion of survey activity.

U.S. GEOLOGICAL SURVEY
PACIFIC COASTAL AND MARINE GEOLOGY SCIENCE CENTER

MANAGEMENT OF ACCIDENTAL DISCHARGE AND VESSEL INCIDENTS DURING OFFSHORE GEOPHYSICAL SURVEYS

1.0 INTRODUCTION

The survey operations will be conducted using two USGS personal watercraft (jet skis) that comprise our Coastal Profiling Systems (CPS). Because of the vehicle's small size, it is anticipated that response to any operational spills will be quickly identified and response will be initiated quickly and efficiently by the vehicle operator. Oil spills in United States (U.S.) marine waters shall be reported immediately.

2.0 OPERATIONAL SPILLS

Operational spills might involve one or more of the following substances carried on board the vehicles: (i) fuel and (ii) lube oil. The vehicles are equipped with woven polypropylene sheets (5 sheets) for rapid absorption of surface oil and protective gloves (1 pair), and a disposal bag (1) This oil spill materials are located in saddle bags on the side of the vehicle. This spill kit is rated to clean up .25 gallons of liquid. All of the liquids (listed below) that could cause a hazardous spill are either in the fuel tank or in the vehicle engine. Spill occurrence will likely be during fueling, in the event of grounding or if any instance occurred that punctured the gas tank. In the event a spill occurred in the engine compartment, the oil spill kit would be used to contain the hazardous liquids and the bilge would not be emptied until it could be pumped out at a hazardous waste facility. We do not anticipate a spill of greater than .25 gallons.

(i) Fuel:

A spill kit shall be available for use in the event of a spill. If the fuel is spilled on the deck, it shall be immediately removed, bagged and disposed of at an appropriate hazardous waste reception facility. In the event of spillage in the water, the vessel master shall notify the Coast Guard and port facility.

(ii) Lube oil:

A spill kit shall be available for use in the event of a spill. If the oil is spilled in the machinery space, it shall be immediately removed, bagged and disposed of at an appropriate hazardous waste reception facility. In the event of spillage in the water, the vehicle operator shall notify the Coast Guard and port facility.

3.0 EMPLOYEE TRAINING ON OIL SPILL CONTINGENCY PLAN

Prior to the launching of the vessel for any activities, all captain and crew members on the vessel will have read the Oil Spill Contingency Plan, understand procedures to be implemented in the event of an oil spill, and know where the oil spill kit is located on the vessel.

4.0 VESSEL FUELING

All vessel fueling will be conducted at an approved docking facility. No cross vessel fueling will be performed. Appropriate spill avoidance measures during filling procedures will be observed. Refueling of the CPS is not allowed at the shoreline unless there is a compelling reason to do so and sufficient spill response equipment to address a spill is on site (i.e., sorbent and containment materials equal to approximately one-third the capacity of the fuel tank).

5.0 PRIORITY ACTIONS TO ENSURE PERSONNEL AND VESSEL SAFETY

Safety of vehicle operators and the vehicles are paramount. In the event that a crewman's injuries require outside emergency assistance, the PCMG safety officer shall be contacted immediately and emergency personnel contacted. While awaiting emergency assistance, the on board vessel master or qualified vessel crew personnel will render first aid and/or CPR. The nearest emergency medical facilities for this area is:

Goleta, Carpinteria and north Rincon:

Santa Barbara Cottage Hospital
400 W Pueblo St, Santa Barbara, CA 93105
(805) 682-7111

Ventura and south Rincon:

Community Memorial Hospital
147 N Brent St, Ventura, CA 93003
(805) 652-5011

Mugu:

Saint John's Regional Medical Center
1600 N Rose Ave, Oxnard, CA 93030
(805) 988-2663

Hermosa Beach:

Torrance Memorial Urgent Care
855 Manhattan Beach Blvd, Manhattan Beach, CA 90266
(310) 939-7873

6.0 MITIGATING ACTIVITIES

If safety of both the vessel and the personnel has been addressed, the vessel master shall care for the following issues:

- Assessment of the situation and monitoring of all activities as documented evidence.
- Care for further protection of the personnel, use of protective gear, assessment of further risk to health and safety.
- Containment of the spilled material by absorption and safe disposal within leak proof containers of all used material onboard until proper delivery ashore, with due consideration to possible fire risk.
- Decontamination of personnel after finishing the cleanup process.

7.0 EMERGENCY CONTACTS FOR STATE AND FEDERAL AGENCIES

Emergency numbers for U.S.C.G. for the Santa Barbara Area are:

Pacific SAR Coordinator - Alameda: 510-437-3700

Rescue Coordination Center, Alameda: 510-437-3700

Any oil spill in U.S. marine waters shall be reported immediately to the following state and agencies:

West Coast Oil Spill hot-line	800-OELS-911, *or*
Department of Fish and Game CalTIP	888-CFG-CALTip
(Californians Turn In Poachers & Polluters)	(888-334-2258). *and*
U.S. Coast Guard National Response Center	800-424-8802
California Office of Emergency Services (OES)	800-OILS-911 or 800-852-7550.

During the phone call, the following information will be given over the phone.

a. Name and telephone number of caller.
b. Spill location
c. What was spilled (oil, gas, diesel, etc.)
d. Estimated size of spill
e. The date & time spill was identified (same day).
f. Any oiled or threatened wildlife
g. Source of spill, if known
h. Activity observed at the spill site

After taking the necessary actions, the spill will be reported in writing to the Governor's Office of Emergency Services on their forms.

Additionally, California Department of Fish and Game certified wildlife rescue/response organizations will be contacted about the spill. In the Southern California area, these include the following contacts:

Oiled Wildlife Care Network
1-877-UCD-OWCN

Animal Advocates
323-651-1336

California Wildlife Center
310-458-9453

U.S. GEOLOGICAL SURVEY
PACIFIC COASTAL AND MARINE GEOLOGY SCIENCE CENTER

GEOPHYSICAL SOUND SOURCE SYSTEMS MAINTENANCE RECORD

Odom Echotrac CV-100 Echo Sounder - 200 kHz Serial # 26067

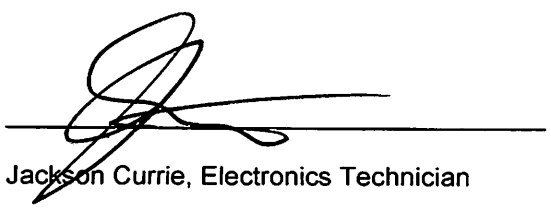
1.0 Introduction

The USGS Pacific Coastal and Marine Science Center (PCMSC) owns and operates a broad range of geophysical sound sources, seafloor mapping systems, geologic and geotechnical sediment sampling systems, and oceanographic instrument systems. This requires considerable technical and operational support to successfully undertake and complete its field programs. Operational and technical support for these systems is provided by the PCMG Marine Operations Facility (Marfac) in Santa Cruz, CA. Our Marfac group is staffed by a team of ten ocean engineers, electronics technicians, and marine engineering technicians. They operate, maintain and repair all geophysical and oceanographic systems used to support all of PCMGSC's scientific field operations.

The Odom Echotrac ECTV-100 echo sounder is owned and operated by PCMSC. This system has been thoroughly checked, tested and calibrated according to the manufacturer's (Teledyne Odom) recommended procedures. This system is comprised of the Echotrac CV-100 Acquisition Controller/Power supply (Serial # 26067) and a 200 kHz transducer, Model # SMBB200-9. The results of this evaluation confirm the echo sounder system to be operating at Teledyne Odom's stated specifications in all regards.

System checkout includes physical inspection of all components, cables, connectors and electronics for any signs of corrosion, wear or damage, all necessary cleaning and full functionality checks.

These procedures were followed by a full at-sea check of all system parameters in order to confirm system performance meets specs. The Odom Echotrac CV-100 is fully compliant with Teledyne Odom stated capabilities and specifications.



Jackson Currie, Electronics Technician

2/9/17

Date

U.S. GEOLOGICAL SURVEY
PACIFIC COASTAL AND MARINE GEOLOGY SCIENCE CENTER

GEOPHYSICAL SOUND SOURCE SYSTEMS MAINTENANCE RECORD

Odom Echotrac CV-100 Echo Sounder - 200 kHz Serial # 26331

1.0 Introduction

The USGS Pacific Coastal and Marine Science Center (PCMSC) owns and operates a broad range of geophysical sound sources, seafloor mapping systems, geologic and geotechnical sediment sampling systems, and oceanographic instrument systems. This requires considerable technical and operational support to successfully undertake and complete its field programs. Operational and technical support for these systems is provided by the PCMG Marine Operations Facility (Marfac) in Santa Cruz, CA. Our Marfac group is staffed by a team of ten ocean engineers, electronics technicians, and marine engineering technicians. They operate, maintain and repair all geophysical and oceanographic systems used to support all of PCMGSC's scientific field operations.

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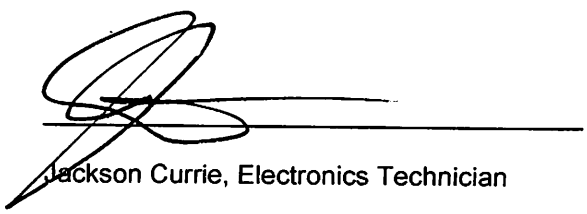

Jackson Currie, Electronics Technician

2/2/17

Date

State of California – Department of Fish and Wildlife
2015 SCIENTIFIC COLLECTING PERMIT APPLICATION
DFW 1379 (REV. 09/02/14) Previously FG 1379 Page 1

CDFW Received SEP 28 2015 BY LRB

DocID: D-0015307922-9
Trans: 11536774 10/07/15 10:43
Outlet: 310001-001 Fee: $315.00
2015 Scientific Collecting Permit
See permit for validity dates.

DEPARTMENT USE ONLY

THIS PERMIT IS VALID:	PERMANENT ID NUMBER	# OF PI's
FROM 10/7/15 THROUGH 10/7/18	SC-13359	

PERMIT, AMENDMENTS AND REPORT OF SPECIMENS CAPTURED OR SALVAGED MUST BE IN IMMEDIATE POSSESSION WHILE COLLECTING

SCIENTIFIC COLLECTING IS NOT ALLOWED UNDER THE AUTHORITY OF A SPORT FISHING LICENSE

■ **NEW** ❑ **RENEWAL** - SC-
When renewing, Report of Specimens Collected or Salvaged **MUST BE ATTACHED** or application will be returned.

CHECK ONE: Nonrefundable Application Fee (submit now) ■ **INDIVIDUAL OR ENTITY - $105.58** ❑ **STUDENT - $26.27**
CHECK ONE: Permit Fee (submit when notified) ❑ **INDIVIDUAL, ENTITY or PI - $315.00** ❑ **STUDENT - $52.79**
DO NOT SUBMIT THE PERMIT FEE NOW - You will be required to submit the permit fee if the permit is approved.
Fees include a nonrefundable three percent (3%) application fee, not to exceed $7.50 per item. (Section 700.4, Title 14, California Code of Regulations (CCR)).

BEFORE COMPLETING APPLICATION: Read instructions, permit descriptions, standard conditions, and number authorizations requested or issued. **Complete all appropriate sections of the application (sponsor's section may be required). Type or print clearly.**

SECTION 1 - INDIVIDUAL PERMITTEE INFORMATION - Complete only if applying as an individual.

FIRST NAME	M.I.	LAST NAME	GO ID NUMBER (FROM ALDS ISSUED LICENSE)

AFFILIATION	❑ Check here if you want future correspondence mailed to your affiliation	TITLE

PERMITTEE'S MAILING ADDRESS	DAY TELEPHONE	FAX NUMBER

CITY	STATE	ZIP CODE	E-MAIL ADDRESS

HAIR COLOR	EYE COLOR	HEIGHT	WEIGHT	SEX ❑ MALE ❑ FEMALE	DATE OF BIRTH

AFFILIATION'S MAILING ADDRESS	CITY	STATE	ZIP CODE

SECTION 2 – ENTITY PERMITTEE – Complete only if applying as a qualified entity

Entities include California certified small businesses, aquariums or zoos accredited by the Association of Zoos and Aquariums, museums, California Special Districts, public agencies, non-profit non-governmental organizations, accredited colleges or universities and instructors at accredited colleges or universities. Proof of such status must be provided with the application. An additional permit fee is required for each PI when the permit is ready to be issued.

ENTITY'S NAME	DATE TELEPHONE	FAX NUMBER
US Geological Survey	(831) 460-7544	(831) 427-4748

ENTITY'S MAILING ADDRESS	CITY	STATE	ZIP CODE
400 Natural Bridges Drive	Santa Cruz	CA	95060

PRINCIPAL SCIENTIFIC INVESTIGATOR (PI) INFORMATION - Provide the following information and attach a statement of qualifications or resume for the full-time permanent employee responsible for providing adequate supervision and training of the employees and volunteers listed below. **WHAT IS THE TOTAL NUMBER OF PI's PROPOSED FOR THIS SCP?** 1

If you have more than one PI proposed under the entity permit, complete and attach page 8 (make copies if needed). The entity shall submit a non-refundable application fee for each PI.

(1) FIRST NAME	M.I.	LAST NAME	TITLE
Patrick	L	Barnard	Geologist

GO ID NUMBER (FROM ALDS ISSUED LICENSE)	DAY TELEPHONE	E-MAIL ADDRESS
1045917074	(831) 460-7556	pbarnard@usgs.gov

List **ALL** employees or volunteers that will be working under the Principal Scientific Investigator named above. Attach a separate list if needed. An amendment form and fee must be submitted, approved, and returned to you by the Department before you can add or remove employees and volunteers from this list. SEE ATTACHMENT 1

FIRST NAME	LAST NAME	DRIVER'S LICENSE OR DMV ID NUMBER	STATE
Daniel	Hoover	D9958673	CA
Jackson	Currie	E1680735	CA
Tim	Elfers	A4568670	CA

FOR DEPARTMENT OF FISH AND WILDLIFE USE ONLY

REVIEWED BY/DATE	APPLICATION FEE TRANSACTION #	PERMIT FEE TRANSACTION #	# APPLICATIONS	LRB ROUTED TO/DATE 1. MK 2. 3.
10/29/15	10/29/15			

State of California – Department of Fish and Wildlife
2015 SCIENTIFIC COLLECTING PERMIT APPLICATION
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CDFW Received SEP 28 2015 BY LRB

FIRST NAME	M.I.	LAST NAME OR ENTITY NAME (IF QUALIFIED ENTITY)	PERMANENT ID NUMBER
		US Geological Survey	SC 13359

SECTION 3 – PERMIT INFORMATION

USE OF PERMIT: CHECK ALL APPLICABLE BOXES

☐ Biological Consulting (generally, catch and release only) ■ Research ☐ Museum Collection ☐ Biological Collection Service
☐ State, Federal or Other Agency Biologist ☐ Education ☐ Other-

Wildlife and Activity: Reminder - You must provide justification in Section 5 for each wildlife taxa and activity checked here. Check the type of wildlife taxa to be taken **AND** circle the type of activity requested: S=sacrifice; R=capture and release; C=take into captivity; SL=salvage; M=mark.

☐ MAMMALS NONE	S	R	C	SL	M	☐ FRESHWATER FISHES NONE	S	R	C		M
☐ BIRDS* *Other activity -* NONE	S	R	C	SL	M	☐ FRESHWATER INVERTEBRATES NONE	S	R	C		M
☐ REPTILES NONE	S	R	C	SL	M	☐ ANADROMOUS FISHES NONE	S	R	C		M
☐ AMPHIBIANS NONE	S	R	C	SL	M	☐ MARINE FISHES NONE	S	R	C	SL	M
☐ VERNAL POOL/TERRESTRIAL INVERTEBRATES	S	R	C	SL	M	☐ MARINE AQUATIC PLANTS NONE	S		C	SL	
***See Standard Condition "K"** NONE						☐ MARINE/TIDAL INVERTEBRATES NONE	S	R	C	SL	M

CHECK ONE: Other SCP permittees are involved in activity or project. YES ☐ NO ■ *(If yes, list the permittees below. Attach separate list if needed.)*

FIRST NAME	LAST NAME	SCIN NUMBER
		SC
		SC
		SC

SECTION 4 – SPONSOR INFORMATION

Students, teachers and individuals collecting on behalf of an organization must all have one member of the organization sponsor them. Sponsors must fully complete this section of the application. Students must have one faculty member with affiliation to the student's college or university sponsor the student. Elementary and secondary school teachers must be sponsored by their principal. In some other cases, the Department may review an application and determine that a sponsor is needed and will request this information directly from the applicant or organization.

SPONSOR'S FIRST NAME	M.I.	LAST NAME	DAY TELEPHONE

TITLE	ORGANIZATION	E-MAIL ADDRESS	

MAILING ADDRESS	CITY	STATE	ZIP CODE

SPONSOR'S CERTIFICATION/SIGNATURE: I verify the take described in this application is required by this organization	DATE

APPLICATION CERTIFICATION

BY CHECKING ALL BOXES, I HEREBY DECLARE THAT THE FOLLOWING INFORMATION IS PROVIDED IN THIS AMENDMENT AND IN THE JUSTIFICATION SECTION

■ Purpose ■ Species + Numbers to be collected ■ Locations + Timeframes for Collecting ■ Species Disposition
■ Methods/Activity ■ Literature Cited ■ Attached Federal/State Permit(s) (Applicable/Not Applicable – Circle appropriate one)

I understand that if I fail to provide all information, circle items or check the boxes, my permit may be denied. I certify that I have read, understand, and agree to abide by, all conditions of this permit and attachments, the applicable provisions of the FGC, and the regulations promulgated thereto. I certify that I am not currently under any Fish and Wildlife license or permit revocation or suspension, and that there are no other legal or administrative proceedings pending that would disqualify me from obtaining this permit. I agree that if I make any false statement as to any fact required as a prerequisite to the issuance of this permit, the permit is void and will be surrendered where purchased, and I understand that I may be subject to prosecution pursuant to FGC Section 1054 or to other administrative actions pursuant to Section 746, Title 14, of the CCR.

APPLICANT SIGNATURE	DATE
X [signature], Center Director, USGS/Reno	9/21/15

State of California – Department of Fish and Wildlife
2015 SCIENTIFIC COLLECTING PERMIT APPLICATION
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CDFW Received SEP 28 2015 BY LRB

FIRST NAME	M.I.	LAST NAME OR ENTITY NAME (If qualified entity)	PERMANENT ID NUMBER
		US Geological Survey	SC 13359

SECTION 5 – PERMIT JUSTIFICATION – Required for **ALL** activities.

IS A FEDERAL OR ADDITIONAL STATE PERMIT OR MOU REQUIRED? ☑ YES *(If yes, attach copies.)* ☐ NO

PROVIDE START AND END DATE AND/OR EXPLAIN SEASONAL REQUIREMENTS FOR YOUR WORK.	START	END
Favorable marine conditions for PWC operations	10/10/2015	10/09/2018

REMINDER - You must provide justification here for each wildlife taxa and activity circled in Section 3. Use the space below to summarize your proposed research. Be sure to include each of the following headers in **bold/underlined** and as follows: **purpose** (include scientific or educational need for the requested activity); **methods/techniques** (include equipment/gear) and the reason for using them; **species and numbers to be collected,** if known (include scientific and common names); **collection locations** (include counties and specific locales and reasons for choosing them); and **disposition,** which describes the organism's fate (i.e. sacrifice, catch and release, salvage, captivity). If you propose to collect in a Marine Protected Area (MPA), give the proper name of the MPA and explain (1) Why collection is required within an MPA and provide justification for why it cannot be conducted outside of an MPA; (2) Why the proposed methods are appropriate for this activity; and (3) Describe the frequency of the proposed activity per collecting area. If you are working in areas where special status species (listed, fully protected, or species of special concern) are expected to be incidentally captured, explain why collection is required in these areas, and describe how your methods/techniques and equipment/gear will avoid or minimize take of non-target sensitive species. If requesting marking/tagging, captivity, or sacrifice, specific details as described above must be included for each species and activity requested. **Attach additional pages if needed. Attach complete copies of appropriate federal permits and additional State permits (e.g., Memorandum of Understanding) to avoid delay of processing.**

SEE ATTACHED JUSTIFICATION

ATTACHMENT 1: Additional personnel

First	Last	DL #	State
Andrew	Stevens	B4374902	CA
Andrea	O'Neill	F4990848	CA
Alex	Snyder	D3869398	CA
Cordell	Johnson	D4495616	CA
Gerry	Hatcher	B4352844	CA
Josh	Logan	B8718123	CA

ATTACHMENT 2: Justification for Geophysical Survey Operations

Bathymetric Survey Purpose and Objectives

The USGS Pacific Coastal and Marine Science Center (PCMSC) will collect single-beam bathymetric data in the Campus Point SMCA as part of an ongoing study of sediment distribution and transport in the Santa Barbara Littoral Cell (SBLC) (https://walrus.wr.usgs.gov/coastal_processes/sbventura/). Bathymetric surveys typically are conducted in the Fall and Spring to document the maximum extent of seasonal changes in beach and seabed morphology; surveys over successive years document longer-term trends in beach and shoreline evolution and the impacts of episodic events such as storm surf and flood inputs.

USGS work in the SBLC has been ongoing since 2005, and has been funded in part by the California Department of Boating and Waterways through a grant from the Beach Erosion Authority for Clean Oceans (BEACON). Work has been performed in collaboration with the University of California, Santa Cruz, and the University of California, Santa Barbara, and with the United States Army Corps of Engineers, Los Angeles District.

Bathymetric data provide critical data for informed decision making and all facets of coastal and marine spatial planning. Examples of products from the SBLC study include:

Coastal processes study of Santa Barbara and Ventura Counties, California. USGS Open-File Report 2009-1029, 904 p.

Littoral transport rates in the Santa Barbara Littoral Cell; a process-based model analysis. Journal of Coastal Research, Special Issue 56, 5 pp. (1 MB PDF)

Dramatic beach and nearshore morphological changes due to extreme flooding at a wave-dominated river mouth. Marine Geology, Volume 273 (1-2), p. 131-148, doi:10.1016/j.margeo.2010.01.018

Additional publications can be found on the project website.

Data to be collected in the proposed surveys will increase the temporal extent of previous surveys (performed from October 2005 to September 2014), and will hopefully document seabed response to the increased wave energy typically associated with El Nino conditions (forecast for winter 2015). This information will be used to monitor change, characterize habitats, contribute to assessments of hazards associated with sea-level rise, coastal erosion, and tsunamis), and will aid regional sediment management. The work and databases will also stimulate and enable new research and enhance public education and awareness.

Methods/Techniques

The survey vessels used for this work will be two USGS personal watercraft (PWCs) outfitted with advanced GPS and single-beam echosounder survey systems (USGS Coastal Profiling System – CPS). The survey will require the use of in-water equipment that generates noise

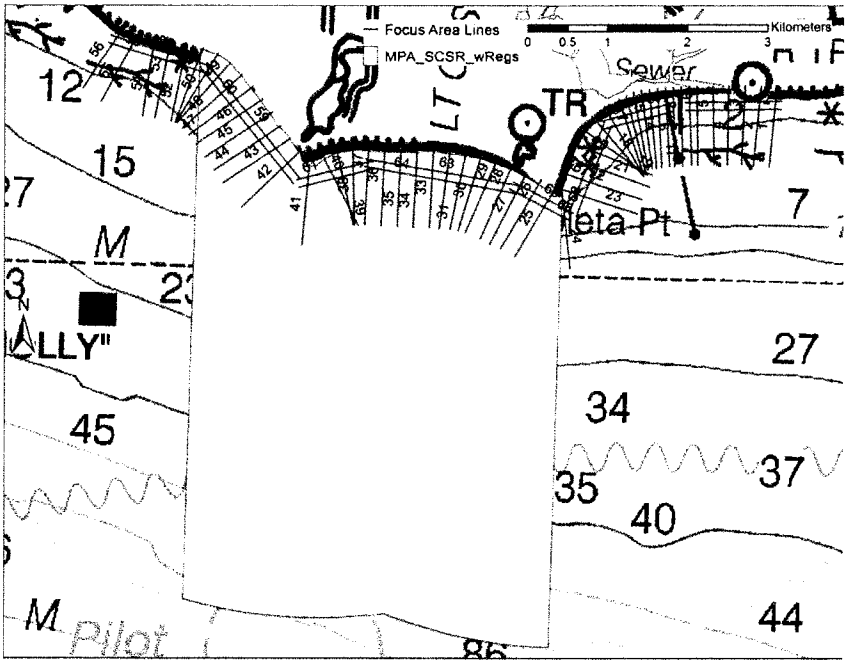

Figure 1. Project location and survey track lines.

The next scheduled survey will be conducted from October 10-17 to take advantage of favorable tides and marine conditions (mean significant wave height and seasonal winds). Up to 3 additional surveys may be conducted over the winter of 2015-2016 to document the effects of expected El Nino-driven increases in wave energy/erosion and fluvial discharge to coastal waters. Normal survey frequency is twice annually, once in Spring (late February to early March) and once in Fall (late September to early October). Because the sensitive sound level radius is less than 1m and surveys are conducted in water depths greater than 1m, no area on the seafloor will fall within the sensitive sound-level radius.

Collection Areas

The track lines will enter the Campus Point State Marine Conservation Area. **No biologic collecting will be conducted in this area.**

Species and Numbers to be Collected

None.

Applicable State and Federal Permits

Marine operations in support of this project will be conducted under California State Lands Geophysical Survey Permit #PRC 8394. These geophysical survey operations will be conducted as "NO TAKE" operations under NOAA NMFS guidelines (observance of a 160dB safety zone for marine mammals) for the Marine Mammal Protection Act and do not require a NOAA NMFS permit.

State of California – Department of Fish and Wildlife
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DFW 1379 (REV. 09/02/14) Previously FG 1379 Page 4

CDFW Received SEP 28 2015 BY LRB

FIRST NAME	M.I.	LAST NAME OR ENTITY NAME (If qualified entity)	PERMANENT ID NUMBER
		US Geological Survey	SC 13359

FOR DEPARTMENT OF FISH AND WILDLIFE USE ONLY

☐ ____ PAGES OF ATTACHEMENTS NOTED IN THIS PERMIT SHALL REMAIN WITH THIS PERMIT AT ALL TIMES. CONDITIONS. AUTHORIZATIONS, AND APPROVALS ARE AS FOLLOWS:

ISSUED BY/DATE

Collections have been approved for work in the marine protected areas specified in this permit.

When collecting **marine species** anywhere in the state you must notify the **Monterey office** of the event and location of your collecting activities **at least 24 hours prior to commencement of such activities** by filling out Form 1379f (Notification of Intent to Collect for Scientific Purposes) and fax it to (831) 649-2819 or email it to R7monterey.frontoffice@wildlife.ca.gov

If you are listed on this permit as an authorized collector and if you have any person(s) assisting with a scientific collecting project or activity, you are required to be present and overseeing the activities as described and must be in possession of a copy of your permit.

This permit does not relieve the permittee of the responsibility to obtain any other permits, or comply with any other Federal, State or local laws or regulations. It is the responsibility of the permittee to know the boundaries and managing authority of State Parks, National Marine Sanctuaries, National Parks, or other specially designated protected areas.

Department of Parks and Recreation: http://www.parks.ca.gov/
National Marine Sanctuaries: http://sanctuaries.noaa.gov
National Parks Service: http://www.nps.gov/

Pursuant to Fish and Game Code 6400, you are **NOT** authorized to release any specimens back into the wild after they have been taken into captivity, unless you obtain written permission from the Department of Fish and Wildlife. Requests to reintroduce animals from holding facilities into the wild will be evaluated based on the benefit of the return weighted against the risk of disease and non-native species introductions to the wild.

You are required to complete and submit a Scientific Collecting Amendment Form (Form FG 1379e) when requesting a change to an existing Scientific Collecting Permit or if your affiliation changes. The SCP Amendment Form is available online at www.dfg.ca.gov/licensing/pdffiles/fg1379e.pdf.

YOU MAY NOT BEGIN ANY NEW COLLECTION ACTIVITY UNTIL YOU HAVE RECEIVED AN APPROVED, VALIDATED AMENDMENT.

You must provide a scientific collecting permit report of specimens collected or salvaged (Form *FG 1379a*) within 30 days of the expiration of the permit, or upon submitting an application to renew a SCP.

If you did not collect any specimens or collected the same individuals as another permittee, you still need to submit a report. Enter a single line indicating that no specimens were collected or indicate the permittee's name and SCP number for the specimens already reported. **PLEASE DO NOT DUPLICATE DATA.**

NO OTHER SPORT OR COMMERCIAL FISHING ACTIVITIES or COLLECTION OF UNAUTHORIZED SPECIES is allowed on the same trips or time periods as scientific collection activities. Collected organisms may not be used for commercial profit or personal benefit.

DEPARTMENT REVIEWER(S) SIGNATURE	2.	3.
1. APPROVED By Brian Owens, Marine Region at 11:09 am, Oct 02, 2015		

PRC 8394

CALIFORNIA STATE LANDS COMMISSION
STATE OF CALIFORNIA
SURVEY PERMIT PRC 8394
GENERAL PERMIT TO CONDUCT GEOPHYSICAL SURVEYS

Pursuant to Division 6 of the California Public Resources Code and Title 2 of the California Administrative Code, the State of California, acting by and through the California State Lands Commission (State or CSLC) hereby issues the United States Geological Survey (Permittee), a non-exclusive geophysical survey permit subject to the following terms and conditions.

TERMS AND CONDITIONS

1. **Permit Area**: This permit covers offshore state waters, excluding inland waterways, known as Regions I, II, III, and IV, between the California-Mexico and California-Oregon borders out to three (3) nautical miles, the Regions are outlined in the map attached as Exhibit A:

   A. Region I - the area between the California-Mexico border and Los Angeles/Ventura County line;

   B. Region II - the area between the Los Angeles/Ventura County line and San Luis Obispo/Monterey County line;

   C. Region III - the area between the San Luis Obispo/Monterey County line and Sonoma/Mendocino County line, excluding San Francisco (to the Golden Gate Bridge), San Pablo, and Suisun Bays; and

   D. Region IV - the area between the Sonoma/Mendocino County line and the California-Oregon Border.

2. **Terms of Permit**: This permit shall commence on October 1, 2013 and shall continue until September 30, 2016, unless terminated sooner as provided in this permit.

3. **Scope of Activities**: Permittee shall comply with the terms of this permit whenever the equipment specified in Exhibit B is deployed or geophysical data are to be collected within the permit area. Geophysical surveys shall include seismic, gravity, magnetic, remotely operated vehicle (ROV) surveys, electrical and geochemical methods of measuring and recording spatial data associated with archaeological/cultural/paleontological research, infrastructure (e.g., pipeline and cable) inspections, dredging, marine biology, oceanography, subsurface geology, and related scientific purposes.

4. **Definitions**: As used within this permit, unless the context indicates otherwise, "CSLC staff" means the Executive Officer of the CSLC or other person designated by the Executive Officer.

plan shall include, at a minimum: (1) specific steps to be taken in the event of a spill, including notification names, phone numbers, and locations of: (i) nearby emergency medical facilities, (ii) wildlife rescue/response organizations (e.g., Oiled Wildlife Care Network), (iii) containment procedures, and (iv) cleanup procedures; (2) a description of crew training and equipment testing procedures; and (3) a description, quantities and location of spill response equipment onboard the vessel.

e. Notification of Geophysical Survey Equipment Used (See Exhibit F): Except as otherwise provided in Exhibit E, Part II, at least twenty-one (21) calendar days prior to each survey, Permittee shall submit, and the CSLC staff shall receive, a written list of the specific make and model of all such equipment Permittee intends to use and, with respect to any equipment that is to be used specifically to generate acoustical energy in order to collect data, any and all specifications regarding decibel levels (dB re 1 μPa), frequencies (Hz, kHz), and all other information requested in Exhibit F, as well as the length of time the equipment will operate.

    i. If, after the list of equipment is provided by Permittee pursuant to this Section, the CSLC staff requests additional information about the listed equipment, Permittee shall promptly provide all such requested information.

    ii. If, after receipt of the list of equipment and any information that may be requested under this Section, the CSLC staff directs Permittee that certain equipment may not be used or may be used only under certain specified circumstances or that Permittee must delay the survey until more information is provided, then Permittee shall comply with any and all such direction.

f. Verification of Equipment Service and/or Maintenance and Sound Output (MM BIO-6, Exhibit H): Prior to commencing survey activities and thereafter on an annual basis, Permittee shall test the low energy geophysical equipment utilized in the noticed survey to verify that the sound source levels are within manufacturer's specifications.

g. Proposed Operation in Marine Protected Areas (MPAs) (MM BIO-9, Exhibit H): Prior to commencing survey activities in or potentially affecting MPAs, Permittee shall coordinate with the CLSC staff, California Department of Fish & Wildlife (CDFW), and any other appropriate permitting agency regarding proposed operations within MPAs. The scope and purpose of each survey proposed within a MPA shall be defined, and an analysis of the consistency of the survey with the allowable MPA activities and the goals of the Marine Life Protection Act shall be conducted.

    i. If deemed necessary by CDFW, Permittee will obtain a scientific collecting permit, or other appropriate authorization, to secure approval to work within a MPA, and shall provide a copy of such authorization to the CSLC staff at least twenty-one (21) calendar days prior to each survey as part of the required notification described in Exhibit E. Note that Permittee should initiate such contact with CDFW and/or other permitting

on a case-by-case basis. The CSLC staff will take into consideration the equipment specifications, location, timing, and duration of survey activity.

e. Simultaneous Equipment Operation: When several pieces of equipment are operating simultaneously they shall be timed so that they will not be transmitting at the same time in order to avoid cumulative effects.

f. Engine Tuning (MM AIR-1, Exhibit H): Permittee shall maintain all construction equipment in proper tune according to manufacturers' specifications; fuel all portable diesel-powered equipment with California Air Resources Board (CARB)-certified motor vehicle diesel fuel limiting sulfur content to 15 parts per million or less (CARB Diesel). Permittee shall also operate equipment in conformance with specific county air quality guidelines as described in Exhibit C.

g. Vessel Fueling (MM HAZ-2, Exhibit H): Vessel fueling shall only occur at an approved docking facility. No cross vessel fueling shall be allowed.

h. Marine Wildlife Monitors (MM BIO-2, Exhibit H): A minimum of two (2) qualified MWMs who are experienced in marine wildlife observations shall be onboard the survey vessel throughout both transit and data collection activities. Onboard MWMs responsible for observations during vessel transit shall be responsible for monitoring during the survey equipment operations. All visual monitoring shall occur from the highest practical vantage point aboard the survey vessel; binoculars shall be used to observe the surrounding area, as appropriate. The following exceptions apply to this condition:

    i. For survey activities that require the collection of geophysical data of nearshore ocean bottom areas, at least twenty-one (21) calendar days prior to the commencement of survey activities, the Permittee may petition the CSLC staff for authorization to conduct survey operations with one (1) MWM aboard. The CSLC staff will evaluate such petitions on a case-by-case basis and, in granting such authorization at its discretion, will consider factors as the timing, type, and location of the survey, the size of the survey vessel, the availability of alternate vessels, and the ability of one (1) MWM to effectively monitor the safety zone(s).

    ii. For survey activities where the only geophysical equipment used is operated at a frequency at or above 200 kHz, one (1) MWM will be required.

    iii. MWMs will not be required aboard vessels conducting survey activities that utilize, as the only form of geophysical equipment, non-pulse or non-acoustic generating, passive survey equipment (e.g., ROV, magnetometers, gravity meters).

i. Safety Zone Monitoring (MM BIO-3, Exhibit H): Except as provided in subdivision (k), the MWMs will survey an area (i.e., safety or exclusion zone) based on the equipment used, centered on the sound source (i.e., towfish), when the survey equipment is operating. The onboard MWMs shall have authority to stop operations

8. **Observers**:

   a. The CSLC staff may require the Permittee to furnish food, quarters, and marine transportation, if necessary, for a CSLC staff representative on any vessel conducting operations authorized by this permit. The CSLC staff representative may observe or inspect all operations conducted pursuant to this permit.

   b. If the CSLC staff representative notes permit violations or determines adverse environmental impacts are being caused or are imminent, the representative may recommend suspension of activities to the CSLC staff. Upon approval of the CSLC staff, the representative may carry out suspension of the activities allowed under this permit pursuant to Section 14.

9. **Data Submission and Examination**:

   a. The Permittee shall submit a post survey Field Operations and Compliance Report to the CSLC staff as soon as possible, but not more than thirty (30) days after the completion of any survey activities conducted under this permit. The Report shall include, at a minimum:

      i. Survey Information:

         1. A narrative description of the work performed, the data obtained, and the logs produced from the operations;
         2. Information about the weather and sea state during operations;
         3. Charts, maps, or plots indicating the areas in which any exploration was conducted, specifically identifying the lines of geophysical traverses, [pre-plot maps(s) may be used provided it accurately depicts the area and lines surveyed], accompanied by a reference sufficient to identify the data produced from each activity;
         4. Spatial information related to the survey track lines (either Global Positioning System (GPS) coordinates or Geographic Information System (GIS) files);
         5. The dates and times during which the actual data collection was performed;
         6. The nature and location of any environmental hazards encountered, and what adjustments, if any, were made;
         7. A description of any accident, injury, damage to, or loss of property which resulted from the reported activities; and
         8. Such other information relative to the permitted activities as may be requested.

      ii. Biological Information:

         1. A narrative description of any encounters with marine mammals, reptiles, and/or unusual concentrations of diving birds/seabirds (e.g.,

vi. The CSLC shall reimburse the Permittee for the reasonable costs of reproducing any data or information.

c. In the event that information or data obtained under this permit are transferred from the Permittee to a third party, or, subsequently, from a third party to another third party, the transferor shall notify the CSLC staff and shall require the receiving third party, in writing, to expressly agree to abide by the obligations of the Permittee under Section 9 of this permit as a condition precedent to the transfer of the information or data.

d. The following definitions apply to words used in this section:

i. Factual or physical survey results include all data and information gathered as the result of any and all operations conducted under this permit by whatever means.

ii. Data means all facts, statistics or samples.

iii. Processed Records mean data collected under a permit which has been processed. Processing involves changing the form of data so as to facilitate interpretation. Processing operations include, but are not limited to, applying corrections for known perturbing causes, rearranging or filtering data, and combining or transforming data elements.

e. Such data and information, as well as products derived therefrom, shall be held confidential as required by Public Resources Code, section 6826, subdivision (c); however, the CSLC staff reserves the right to disclose any data or information acquired from Permittee to an independent contractor or agent for the purpose of reproducing, processing, reprocessing, or interpreting such data or information for the use of the Commission.

10. **Third Party Damage Claims**: Permittee shall make a good-faith effort to settle all claims brought by third parties for damages resulting from Permittee's geophysical survey activities.

11. **Bond**: ~~Permittee shall furnish, and maintain, until released by the CSLC, a bond or letter of credit in the sum of fifty-thousand-thousand-dollars ($50,000.00), in favor of the State, for its exclusive use and benefit, to guarantee the faithful performance by the Permittee of this permit's terms and conditions and satisfaction of third-party damage claims. The bond or letter of credit shall be delivered to the CSLC at the address specified in Section 16, prior to the effective date of this permit. The bond or letter of credit shall be non-cancellable and shall, by its own terms, remain in effect until at least one-hundred-fifty (150) days after the termination date of this permit, unless earlier released by the CSLC.~~

See Attachment A for replacement language

12. **Insurance**: ~~At the option of the CSLC staff, Permittee shall submit a certificate of self-insurance or procure and maintain liability, property damage, or other insurance for the benefit of the State in an amount satisfactory to the CSLC staff.~~

13. **Indemnity**: ~~Permittee agrees to indemnify, save harmless and, at the option of the State, defend the State of California, its officers, agents and employees against any and all claims,~~

RyPeter 7/17/14

Attachment A

This verbiage replaces section 11:

11. The USGS is responsible for damage to persons or property caused by the negligent acts or omissions of USGS employees acting within the scope of their employment in accordance with the Federal Tort Claims Act, 28 U.S.C. 2671, et seq.

This verbiage replaces section 12:

12. Signature of this survey permit, the Permittee is certifying that the USGS is self-insured.

This verbiage replaces section 13:

13. The USGS agrees to be responsible for damage to persons or property due to the negligent acts or omissions of USGS employees acting within the scope of their employment, in accordance with the Federal Tort Claims Act, 28 U.S.C. 2671, et seq.

Rona J Peters 7/17/14

Rona Y. Peters
Regional Management Officer, USGS, Pacific Regional Office

IN WITNESS WHEREOF, the parties hereto have executed this permit as of the date entered below.

STATE OF CALIFORNIA
STATE LANDS COMMISSION

8/13/14
Date

Marina Voskanian
Marina Voskanian, P.E.
Division Chief,
Mineral Resources Management Division

PERMITTEE*

7/18/14
Date

By: Brian Peters, Acting
Title: Regional Director, Pacific Region
Address: 6000 J ST, Ste. 5000, Placer Hall
CSUS
Sacramento, CA 95819
City, State and Zip Code

* In executing this document, the following is required:

Corporations: Certificate of Corporate Secretary providing that the Board of Directors authorized the execution of this permit specifically or authority to execute documents of this type generally. An example of the type of form required is attached as Exhibit I.

Individuals: Acknowledgment of signature is required.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California
County of Los Angeles

On **August 13, 2014** (Date) Before me, **Alicia Sabry, Notary Public** (Here Insert Name and Title of the Officer)

Personally appeared ---------- **Marina Voskanian** ----------
(Name(s) of Signer(s))

Who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is/~~are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity~~(ies)~~, and that by ~~his~~/her/~~their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

ALICIA SABRY
Commission # 2063145
Notary Public - California
Los Angeles County
My Comm. Expires May 1, 2018

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Alicia Sabry
Signature of Notary Public

Place Notary Seal Above

EXHIBIT A
PERMIT REGIONS

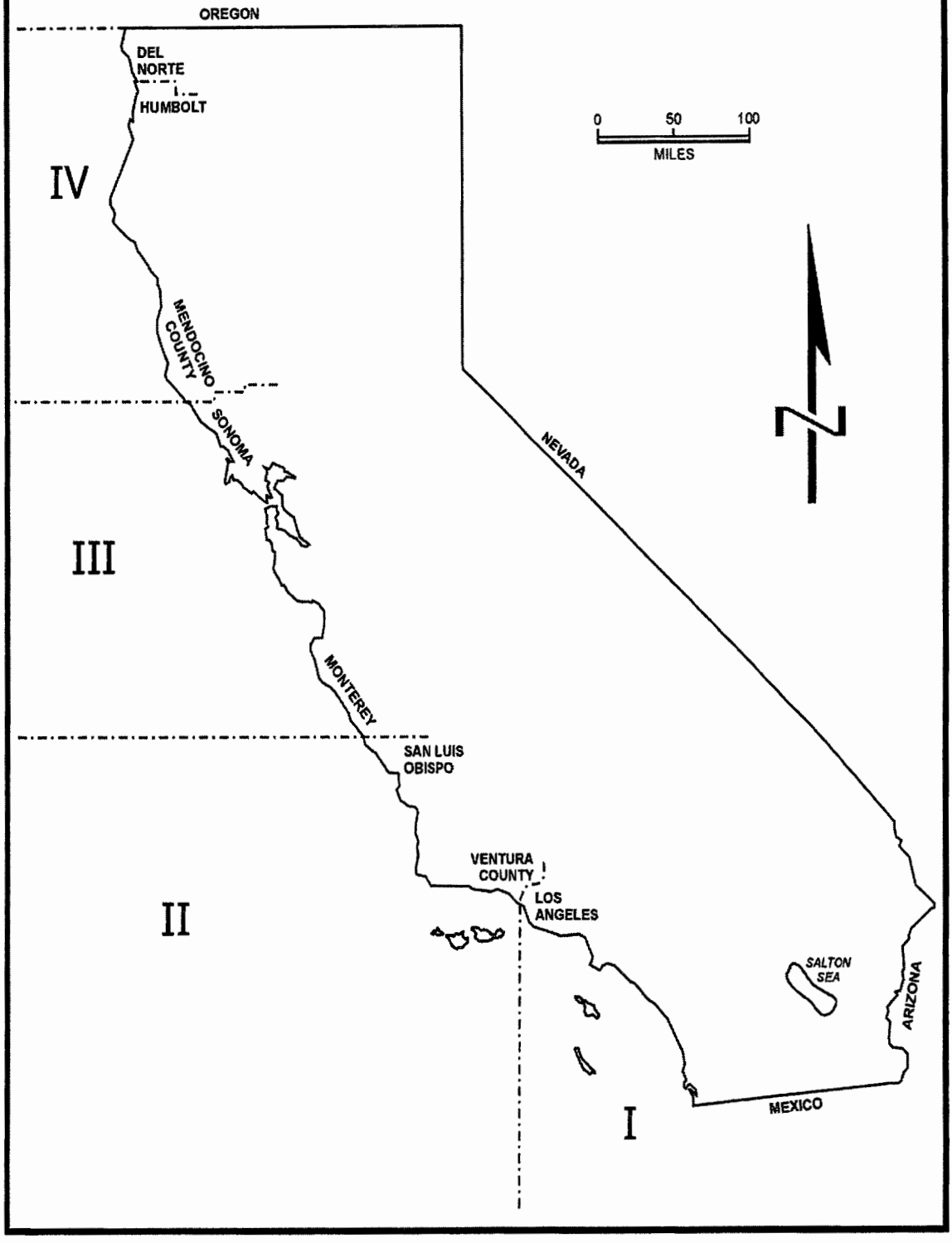


EXHIBIT C

ENGINE TUNING, ENGINE CERTIFICATION, AND FUELS

The Permittee shall implement the following measures, as applicable, depending on the county offshore which a survey is being conducted.

1. All Counties: Maintain all construction equipment in proper tune according to manufacturers' specifications; fuel all off-road and portable diesel-powered equipment with California Air Resources Board (CARB)-certified motor vehicle diesel fuel limiting sulfur content to 15 parts per million or less (CARB Diesel).

2. Los Angeles and Orange Counties: Use vessel engines meeting CARB's Tier 2-certified engines or cleaner*; the survey shall be operated such that daily NOx emissions do not exceed 100 pounds based on engine certification emission factors. This can be accomplished with Tier 2 engines* if daily fuel use is 585 gallons or less, and with Tier 3 engines if daily fuel use is 935 gallons or less.

3. San Luis Obispo County: Use vessel engines meeting CARB's Tier 2-certified engines or cleaner*; all diesel equipment shall not idle for more than 5 minutes; engine use needed to maintain position in the water is not considered idling; diesel idling within 300 meters (1,000 feet) of sensitive receptors is not permitted; use alternatively fueled construction equipment on site where feasible, such as compressed natural gas, liquefied natural gas, propane or biodiesel. Maximum diesel fuel consumption allowed in any day is 720 gallons.

4. Santa Barbara County: Use vessel engines meeting CARB's Tier 2-certified engines or cleaner*.

5. Ventura County: Use alternatively fueled construction equipment on site where feasible, such as compressed natural gas, liquefied natural gas, propane or biodiesel.

* The Tier 2 engine requirement applies only to diesel-fueled vessels, pursuant to section 93118.5 of CARB's Airborne Toxic Control Measures.

EXHIBIT E
PRESURVEY NOTIFICATIONS

PART I

General Notification Requirements

The State may, upon thirty (30) calendar days' notice to Permittee; prescribe additional or different procedures to be followed by the Permittee.

A. General Requirements: Whenever surveys are proposed to be commenced under this permit, Permittee shall give notice in the following manner:

1. At least twenty-one (21) calendar days in advance of any proposed operations, written notice of the proposed operations (see subsection B below) must be received by the following parties:

   i. Statewide Geophysical Coordinator
   California State Lands Commission
   200 Oceangate, 12th Floor
   Long Beach, CA 90802-4331
   Faxing: (562) 590-5295
   Emailing: slc.ogpp@slc.ca.gov

   ii. USCG Local Notice to Mariners
   Commander (dpw)
   CG Eleventh District
   Bldg. 50-2, CG Island
   Alameda, CA 94501-5100
   Faxing: (510) 437-5836
   Emailing: D11LNM@uscg.mil

2. At least twenty-one (21) calendar days in advance of any proposed operations, the Permittee shall post the notice described in subsection B below in: (1) the harbormasters' offices of regional harbors; and (2) dive shops in coastal locations adjacent to the proposed offshore survey operations (by fax, e-mail, or in person to operator of the shop).

3. One working day in advance of the actual operations, the Permittee shall inform the State's Geophysical Coordinator, (562) 590-5201, by telephone, to confirm the receipt of required notices by the parties listed in in A.1 above. The Permittee shall also send to the State's Geophysical Coordinator, a copy of any final pre-plot of the survey, including corresponding Global Positioning System (GPS) coordinates, which shall reflect any changes made in the planned survey.

4. Permittee shall use its best efforts to notify the parties listed in A.1 and A.2 and any other affected individuals of substantial addition, modification, deviation, delay, or cancellation, concerning the survey area or survey dates, in the original notice. Permittee shall notify the CSLC staff of such modifications or delays prior to their occurrence.

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND GAME
10/2/2015 3:43 PM
CDFW License and Revenue Branch
Outlet No: 310001-001
Clerk: RLEE

Purchase Receipt
Trans #11510027

US GEOLOGICAL SURVEY
GO ID: 1045917074

Item Name	Amount
Scientific Collecting App Fee	105.58
Customer Total:	$105.58
DFG Item Fees SubTotal:	**$105.58**
Transaction Total:	**$105.58**

CREDIT CARD 097871 $105.58
Tender Amount: $105.58
CHANGE: ($0.00)
Total Amount: $105.58

CALIFORNIA DEPARTMENT OF FISH &

WILDLIFE

15 **AD**

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND WILDLIFE
SCIENTIFIC COLLECTING PERMIT APPLICATION FEE
See permit for validity dates.

D-0015273418-1

GO ID: 1045917074
NO ACTIVE ID
US GEOLOGICAL SURVEY
400 NATURAL BRIDGES DR
SANTA CRUZ, CA 95060

Doc No: D-0015273418-1
Trans: 0000000011510027
025547075
Outlet No: 310001-001
10/2/2015 3:43:32 PM

Item	Fee*
Scientific Collecting App Fee	$105.58
	Total: $105.58

*Includes any applicable application fees, agent handling fees and license buyer surcharge.

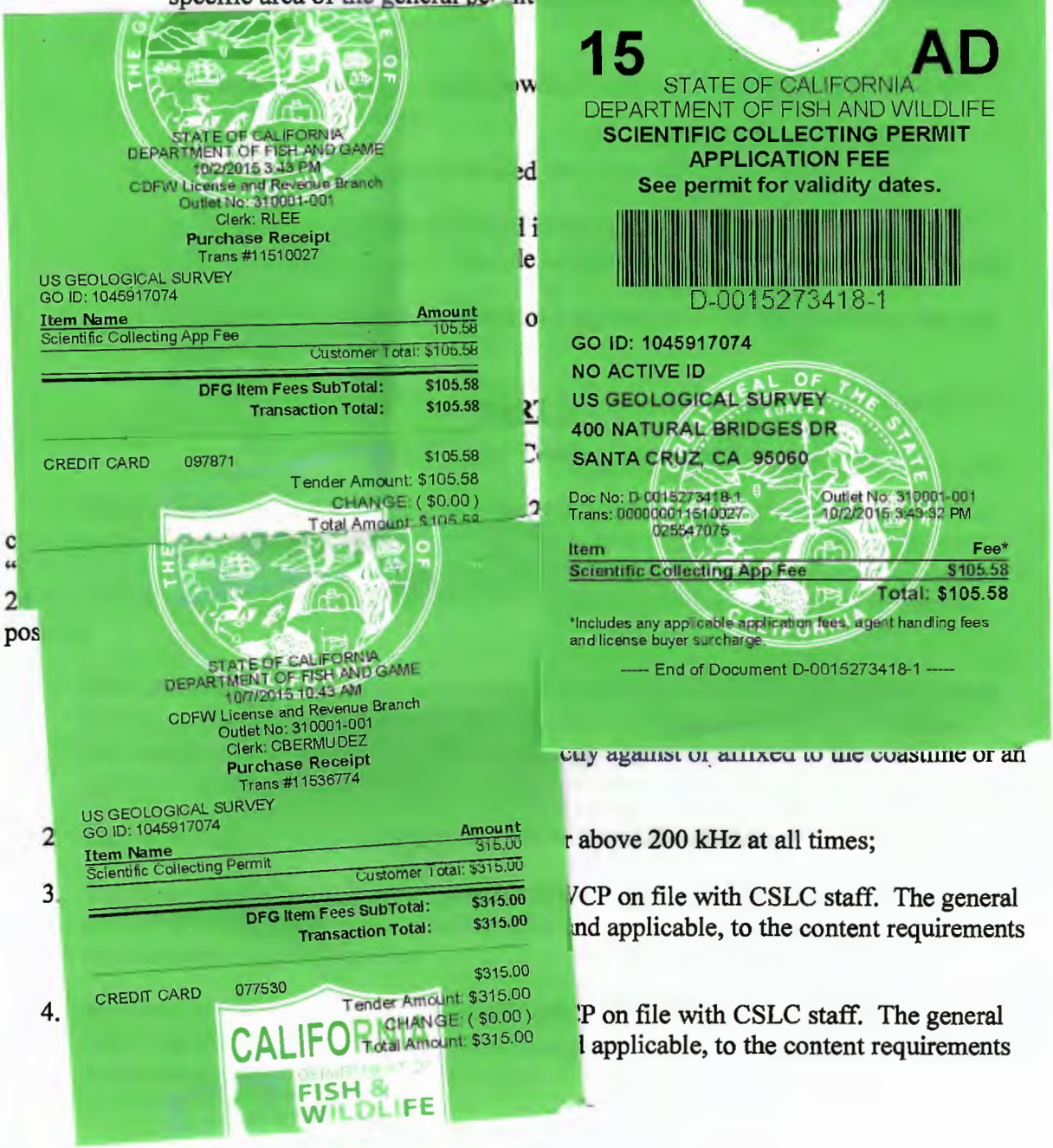
----- End of Document D-0015273418-1 -----

5. Permittee shall notify the State's Geophysical Coordinator by telephone within one (1) working day of completion of the survey activity.

B. Contents of Notice: The written notification required shall include information in the format requested in Exhibit F and outlined below:

1. The name of the vessel, the name of the ship's captain/designee, the ship's call signs, and the specific radio channel which will be monitored by the vessel at all times during operations authorized

2. The exact dates through which the specific area of the general permit



city against or affixed to the coastline or an

2 above 200 kHz at all times;

3 VCP on file with CSLC staff. The general nd applicable, to the content requirements

4. P on file with CSLC staff. The general l applicable, to the content requirements